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|                |         |
|----------------|---------|
| CIRCULATION    | ELEMENT |
| HOUSING        | ELEMENT |
| OPEN SPACE     | ELEMENT |
| CONSERVATION   | ELEMENT |
| SEISMIC SAFETY | ELEMENT |
| NOISE          | ELEMENT |
| SCENIC ROADS   | ELEMENT |
| SAFETY         | ELEMENT |
| LAND USE       | ELEMENT |
| CIRCULATION    | ELEMENT |
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| SEISMIC SAFETY | ELEMENT |
| NOISE          | ELEMENT |
| SCENIC ROADS   | ELEMENT |
| SAFETY         | ELEMENT |



# COMPREHENSIVE GENERAL PLAN REDWOOD CITY 1975

|                |         |
|----------------|---------|
| LAND USE       | ELEMENT |
| CIRCULATION    | ELEMENT |
| HOUSING        | ELEMENT |
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Redwood City, City Council.

City planning Redwood City

Approved by the **PLANNING COMMISSION** on  
September 30, 1975.

**... HUMAN RIGHTS,  
PERSONAL DIGNITY,  
AND THE ECOLOGY ARE AS  
IMPORTANT AS PROPERTY RIGHTS.**

Adopted by the **CITY COUNCIL** on  
January 19, 1976.



77 02050

**CITY COUNCIL**

|                           |                   |
|---------------------------|-------------------|
| <b>Ray A. Weymouth</b>    | <b>Mayor</b>      |
| <b>James S. Williams</b>  | <b>Vice Mayor</b> |
| <b>Michael J. Barrett</b> | <b>Councilman</b> |
| <b>Mary W. Henderson</b>  | <b>Councilman</b> |
| <b>Marguerite Leipzig</b> | <b>Councilman</b> |
| <b>Robert E. Norris</b>   | <b>Councilman</b> |
| <b>William C. Rhodes</b>  | <b>Councilman</b> |

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**Elise M. Johnson**  
**Mario A. Biagi**  
**Marjorie A. Guida**  
**William J. Price**  
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**Ken Schroeter**  
**Max C. Weeks**

**PLANNING**

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**Raymond Schoenfeld**  
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**Marc Weiss**  
**Anu Raud**  
**Sonja Bex**  
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**Tony M. Gonzales**  
**Nancy Wilson**  
**Jeff Rhoads**  
**Pat West**  
**Kelvin Tse**  
**Speer McClellan**  
**Marsha Magness**

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**Chairman**  
**Vice Chairman**  
**Secretary**  
**Commissioner**  
**Commissioner**  
**Commissioner**  
**Commissioner**

**ADMINISTRATION**

**City Manager**  
**Assistant City Manager**  
**Police Chief**  
**Chief Building Official**  
**Fire Chief**  
**Public Works Director**  
**Planning Director**  
**Parks & Recreation Director**

**DEPARTMENT**

**Planning Director**  
**Planner III**  
**Zoning Administrator**  
**Planner II**  
**Planner I**  
**Planner I**  
**Secretary**  
**Secretary**

**ACKNOWLEDGEMENTS**

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**Planning Commissioner (resigned)**  
**Management Consultant**  
**Research & Administration**  
**Research & Typing**  
**Research & Graphics**  
**Graphics & Illustration**  
**Research & Graphics**

**CREDITS**

**REDWOOD CITY  
CALIFORNIA  
GENERAL PLAN**

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GENERAL PLAN

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# INTRODUCTION

GENERAL PLAN

GENERAL PLAN



The General Plan is a statement of policy, adopted by the Planning Commission and the City Council, which prescribes the course of development of Redwood City into the future. The future for the purpose of this General Plan is 25 years, a quarter century, projecting to the year 2000 A.D. The 1975 Revised General Plan consists of the nine following elements:

LAND USE Element  
CIRCULATION Element  
HOUSING Element  
OPEN SPACE Element  
CONSERVATION Element  
SEISMIC SAFETY Element  
NOISE Element  
SCENIC ROADS Element  
SAFETY Element

1. General Characteristics: Redwood City is situated on the San Francisco Peninsula along the San Francisco Bay, 30 miles south of San Francisco. Redwood City is the oldest settlement on the Peninsula between San Francisco and San Jose, and one of the most important, serving as the County Seat of San Mateo County. Its location midway between San Francisco and San Jose is advantageous, allowing the City to benefit from both the electronics-based economy to the south and the more mature service-oriented economy to the north. It is natural that Redwood City's regional importance and prestige should continue to grow throughout the coming quarter century.

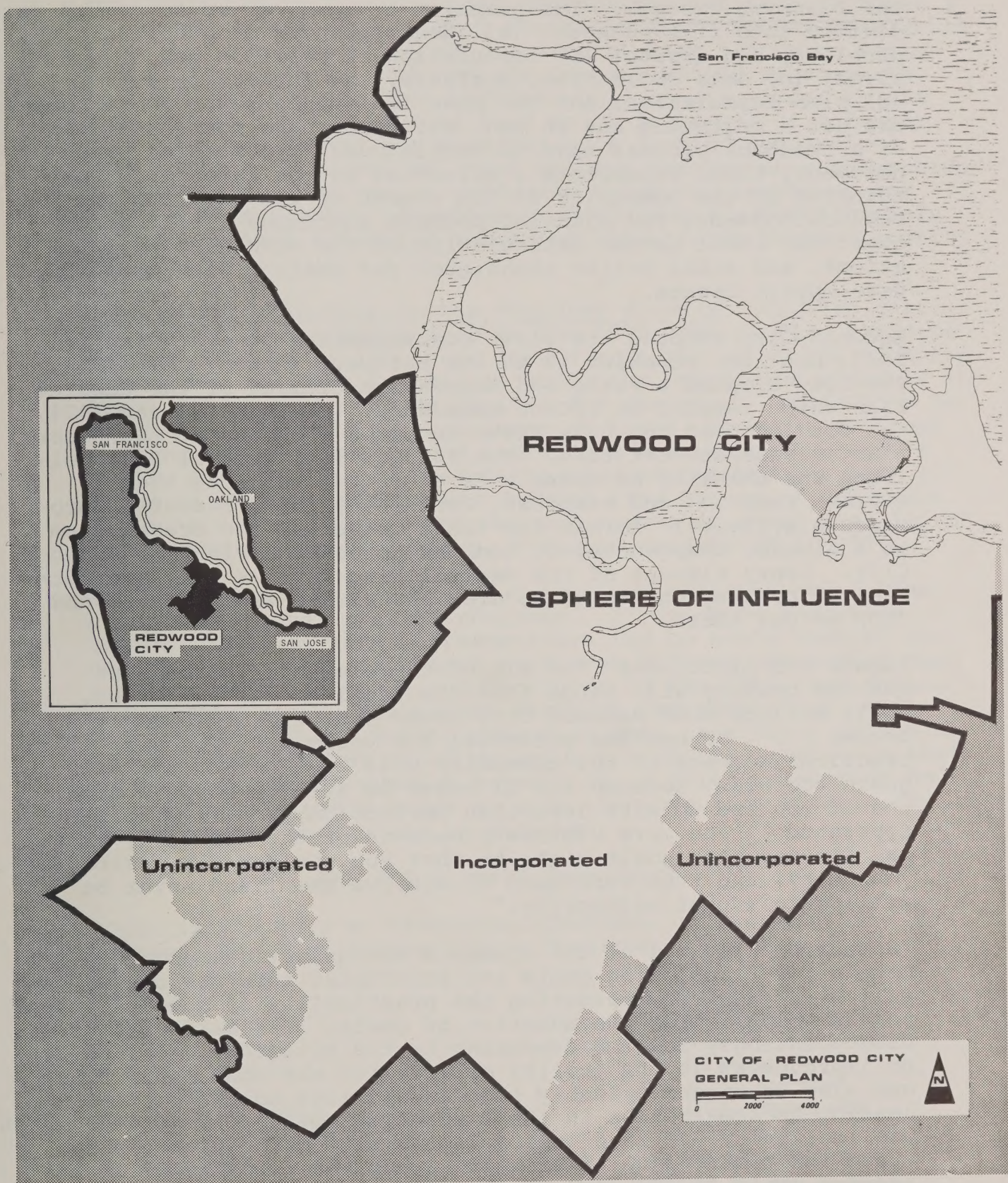
Redwood City's 125-year history is marked by alternating periods of "growth" and "leveling." The most rapid population growth occurred between 1940 and 1960 when the population increased nearly four-fold--from 12,453 to 46,290 inhabitants. The 1975 population is 54,000 inhabitants according to the State Department of Finance. The City's most rapid physical growth occurred in 1959 when 15,981 acres of baylands were annexed to the earlier 4,733 acres of the City. The total area of Redwood City in 1975 is 21,560 acres.

The area of Redwood City expressed in English and Metric terms:

|                             |                                 |
|-----------------------------|---------------------------------|
| English: 33.69 square miles | Metric: 87.25 square kilometers |
| 21,560 acres                | 8,725 hectares                  |

The General Plan Area goes beyond the City Limits of Redwood City to include unincorporated territories within the Redwood City Sphere of Influence. There are ten scattered locations of unincorporated territories within this Sphere of Influence comprising about four square miles of land area.





# PLANNING AREA



2. The Planning Process: The planning process can be conceived as divided into five phases: (a) identification of opportunities, problems, and issues; (b) formulation of policies and objectives; (c) data collection, analysis, and interpretation; (d) plan formulation; and (e) plan implementation. These phases are not a beginning and an end, but rather are the guideposts of a feedback process that is continuous. The General Plan document, then, represents a milestone as the latest and best thinking of the community at the moment of its adoption and publication--but the planning process continues in the ongoing quest for still better articulation of the community's aspirations, and still better techniques for dealing with community development issues.

Redwood City adopted its first comprehensive General Plan in 1947, but then repealed it in its entirety in 1957. In 1967, the City adopted a Parks and Recreation Element of the General Plan which remains in effect unamended. During 1973 and 1974, the City adopted the nine State-mandated elements of the General Plan as separate entities. The 1975 revised General Plan collects the thinking of those nine elements, subjects them to citizen reaction and response, correlates their features, provides a systematic format for their contents, and treats them as a single, comprehensive, long-range General Plan for Redwood City. Every element of the General Plan follows the same outline in portraying "where we are," "where we want to go," and "how we get there."

"Goals and principles" for all of the elements in the next quarter century will range from the ideal to the practical. Goals reflect what Redwood City could be . . . or could become . . . or has the potential for becoming. The more practical members of the community will say "not to set your goals too high, because you'll never be able to achieve them, and if you end up with less than perfection, you'll be disappointed." The more visionary members of the community will say "to set your goals high, to what you would truly desire for your city, and then work hard to achieve them, and never be willing to accept mediocrity."

"Standards" for all of the elements are guidelines and parameters for translating goals and principles into proposals, as well as a gauge for measuring the practicality of specific proposals which follow the adoption of goals. Standards can be disappointingly low and demeaning to the citizenry, leading to no improvement in the quality of life for the community. They can also be unrealistically high and foreign to the locale, leading to frustration in their unachievability. Standards which are realistic, and then just a little bit on the higher side, stand the best chance of bringing about the fulfillment of the adopted goals in the span of time that has been set for this General Plan.



"Implementation" of all of the elements depends on the level of determination in the community and the availability of human and economic resources. Many desirable improvements that would carry out the objectives of the General Plan cannot be implemented due to their cost and the unavailability of adequate municipal finances. This problem would be alleviated to the degree that revenue sources were to be increased at a faster rate than the demand for services by a growing population. This could be achieved at least in part through an acceleration of commercial development producing sales tax revenues, and other non-residential development producing a proportionately higher assessed valuation ratio for potentially higher property tax revenues.

3. Citizen Participation in the Planning Process: Citizen participation played a major role in the 1975 General Plan Revision Program. Seven citizen task forces were set up by the Planning Commission and City Council to study the respective elements in depth and to make recommendations for changes. Invitations for involvement were made to citizens at large, to organizational representatives, and to the individual members of the City's Boards and Commissions. Participating membership was open to everyone residing within the Redwood City Sphere of Influence. One hundred residents responded and served on these task forces during the months of January, February, and March in 1975.

Each task force had a City Councilman as chairman and a Planning Commissioner as vice chairman. In order to encourage broad, community-wide representation and to avoid special interest domination, each task force was allowed one voting member from each of the 20 neighborhoods in the City, one voting member from each organization desiring representation on that task force, and one voting member on that task force from each of the City's Boards and Commissions, with the limitation that there should be no overlap between these three categories and that no person could serve on more than one task force. The resulting membership was as follows:

#### LAND USE Element Task Force

Councilwoman Mary W. Henderson, Chairman  
Commissioner Fred Soderer, Vice Chairman  
Nancy Anthony  
Ed Davoli  
Jeannie Dowd  
Alice Fresquez  
Marjorie Guida  
Don Hager  
Robert J. Hoffman  
Gerald O. Johnson  
Jessie Jones  
Ronald J. Kunkel

Dick McBrien  
Eugene Moriguchi  
William E. Morrissey  
Bob Pitt  
James D. Sartor  
Doris C. Thompson  
Rick Thurber  
Joanne Weintraub  
George E. Wolfson



## CIRCULATION Element Task Force

Mayor Ray A. Weymouth, Chairman  
Commissioner Richard G. Kelly, Vice Chairman  
Robert Buickerood Robert E. Lyon  
Kitty Glaza L. M. "Meek" Mauk  
George Hayes Steven M. Williams

## HOUSING Element Task Force

Councilwoman Marguerite Leipzig, Chairman  
Commissioner William J. Price, Vice Chairman  
Kerstin Bent Lou Neubauer  
Bob Bills Dorothy Philbrick  
Bob Bury John H. Quinn  
Patricia Carol Davis Edwira Reid  
Greg Flessing Ed Riffle  
Ted Gillis Gedalia Snow Rowe  
Ed Immethun Ray Salem  
Paul Keckley Stan Silverstein  
Lewis Lint Dave Skou  
Kathleen Mahany Annette Weiss  
James C. McAninch Gray Allan Wilson  
Monsignor Munier Carol Wong  
Bernice Neilson Verda Wymer

## OPEN SPACE Element Task Force

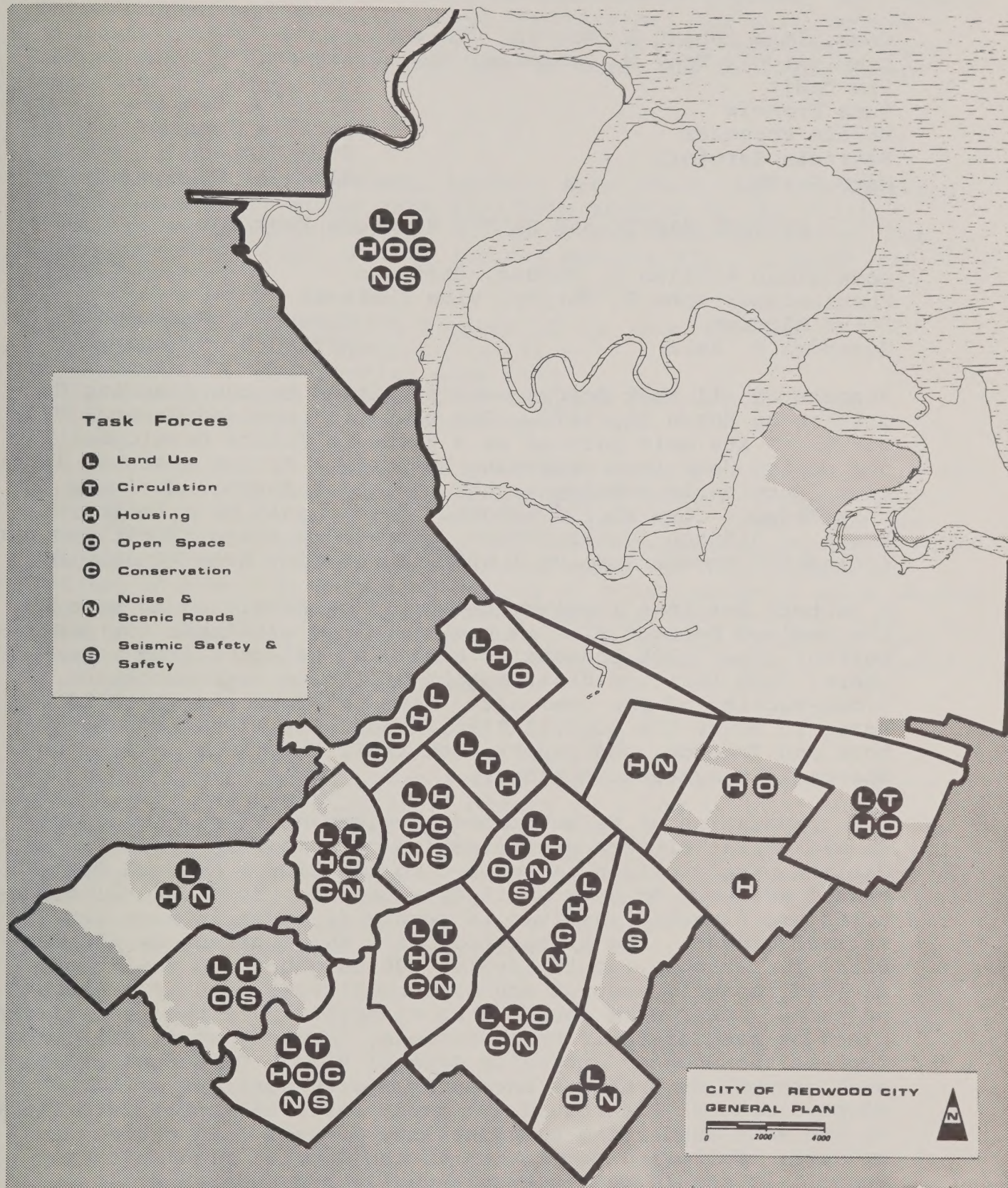
Councilman James S. Williams, Chairman  
Commissioner Mario A. Biagi, Vice Chairman  
Norton Batkin  
Keith Bautista Bodil S. Mollegaard  
Lottie Blewett George Plotnikoff  
Maggie Gunn Robert M. Schlesinger  
Tom Linebarger Ed Towle  
Anita Louis Al Wolffe

## CONSERVATION Element Task Force

Councilman Michael J. Barrett, Chairman  
Commissioner Elise M. Johnson, Vice Chairman  
Bruce B. Albin  
Miesje Aldrich Marcia E. Poncia  
George L. Dragan Diane J. Pound  
Colleen Greenfield Bob Saint  
Lee R. Greenfield Richard Smithee  
Mary Ellen Hoffman Peter Uccelli

The list of task forces and their members is continued on page 8.







## NOISE and SCENIC ROADS Elements Task Force

Councilman Robert E. Norris, Chairman  
Commissioner Tony M. Gonzales, Vice Chairman  
Wim DeWit  
Zuma Francis  
Bennie Fresquez  
Patricia Garofoli  
Mary Gorth

Myron B. Hawkins  
Lucille Johnson  
Stew Simpson  
Mitchell E. Webber

## SEISMIC SAFETY and SAFETY Elements Task Force

Councilman William C. Rhodes, Chairman  
Commissioner John G. Murphy, Vice Chairman  
Steve Aldrich  
Surendra N. Amin

Ernest B. Holmwood  
Alfred B. McKendry

Reports of all task forces were submitted to the Planning Commission on March 31, 1975. The resulting revised General Plan serves in its main purpose as a guide to future developmental and policy decisions affecting the City. It has a second important function in serving as the basis for further dialogue on what Redwood City should become. This should be a follow-up stage of citizen participation. This next stage of citizen participation should involve 1,000 Redwood City Area households.

A pattern for this involvement should be developed as soon as the revised General Plan is published and available for distribution. The 1,000 households should be selected from volunteers, such that the distribution will be a representative cross-section of the community, made up of people who will agree to study the General Plan, discuss it with their neighbors and friends, and report back their reactions on its substance in a systematic manner.

The preparation of Neighborhood Development Plans, in turn, should enlist citizen participation on a mounting scale. Citizen participation in respect to the City's General Plan should continue to grow until five-to-ten percent of all households are directly involved in supplying input in some formalized manner. The preparation of a Neighborhood Development Plan, for example, could involve 100 neighborhood residents, divided among 10 special concerns committees with 10 members on each. Their work would be an elaboration of the generalized plans of each of their neighborhoods, carried out in the context of the adopted City-wide General Plan. Disagreements by such groups, or problems encountered with portions of the adopted General Plan could, in turn, serve as appropriate input to the next succeeding comprehensive General Plan review and up-date. Following completion of the General Plan in this manner, it should be reviewed annually and updated at least once every five years.



In this way, the General Plan will continue to improve; will become increasingly reflective of local aspirations; and will provide a valuable source of enlightenment to the citizens and their representatives on the role of the City in this, our evolving urban-cultural civilization.

- - -

Other General Plan Elements, Special Area Plans, and Neighborhood Development Plans which have also been adopted by the Planning Commission and City Council, and which are still effective, but which are not a part of this revised General Plan, include the following:

- PARKS AND RECREATION Element of the General Plan
- REDWOOD SHORES Special Area Plan
- WOODSIDE ROAD Special Area Plan
- EMERALD LAKES/REDWOOD CITY HILLSIDE Special Area Plan
- DOWNTOWN Neighborhood Development Plan.

Special Area and Neighborhood Development Plans are portions of the General Plans as seen through a magnifying glass. A Special Area Plan for the balance of the Waterfront has been prepared in proposed form and should be completed. Neighborhood Development Plans for all other neighborhoods within the Redwood City Sphere of Influence should be begun. A number of other elements which should also be begun following adoption of this Revised General Plan include: Historic Landmarks Element, Public Facilities and Services Element, Community Design Element, Social Element, Economic Element, and Redevelopment Element.

- - -

As a guide, the General Plan itself has no inherent power of enforcement. It is unlike an ordinance or a law in this respect. The words "shall," "must," and "will," are not appropriate in the General Plan as they are in laws or ordinances, or in such implementing devices as the Five-year Capital Improvements Program. To reach this more definitive stage, the provisions of the General Plan need to take another step, as a separate and independent action, before they can be carried out.









# COMPREHENSIVE GENERAL PLAN Elements











# LAND USE

# 1





## A. PURPOSE

The LAND USE ELEMENT of the General Plan prescribes the course of development of the City into the next quarter century with respect to the location, extent, and relationships of (1) residential, (2) commercial, (3) employment, (4) institutional, (5) public, (6) recreational, and (7) open space uses of land. Ideally conceived, the Land Use Element will promote the best interest of the health, safety, welfare, comfort, and convenience of the general public, and through its implementation will create a functionally efficient, physically beautiful, and psychologically satisfying city for the benefit and enjoyment of its inhabitants.

Agreement on goals for the use of land in Redwood City can lead logically to the adoption of public policy. This adopted policy becomes the Land Use Element of the General Plan. Future decisions by the City Council and all agencies of the City pertaining to the use of land are matched against this policy for conformity with overall objectives. Goals change, and policy can be changed accordingly; hence, the need for periodic review and evaluation of the policy embodied in this Land Use Element.

## B. EXISTING CONDITIONS

Redwood City today is a product of 125 years of settlement and growth, beginning near the present intersection of Main Street and Broadway along both sides of Redwood Creek, and spreading out to the crest of the hills on the west and to the thread of San Francisco Bay on the east, covering an area of 33.69 square miles, or 21,560 acres.

Up to 1959, Redwood City had grown to less than a quarter of its present physical size, or about 4,733 acres. In 1959, extensive areas of the Bay and baylands, belonging to the Leslie Salt Company and others, were added to Redwood City. The major part of this annexation was, however, open water in the Bay. The total area of Redwood City is now quite nearly evenly divided between land area and water area.

|                             |                    |
|-----------------------------|--------------------|
| Total area of Redwood City: | 21,560 acres       |
| Land area of Redwood City:  | 11,688 acres (54%) |
| Water area of Redwood City: | 9,872 acres (46%)  |

Most of the land area lies vacant today, owing mainly to the extent of open and undeveloped baylands. The baylands are technically classed as land area, regardless of their elevation, if they are diked off and separated from the tidal waters of the Bay. (This is, however, a controversial interpretation. Some would argue that



baylands should be classed as land area only where their elevation is at least four feet above mean sea level, regardless of diking.) Other vacant areas include skipped-over, undeveloped land and large, publicly-owned sites which remain unused.

|                                  |                   |
|----------------------------------|-------------------|
| Total land area of Redwood City: | 11,688 acres      |
| Developed areas of land:         | 5,005 acres (43%) |
| Vacant areas of land:            | 6,683 acres (57%) |

Residential development occupies the greater share of developed land in Redwood City, with streets next in line.

|                                   |                   |
|-----------------------------------|-------------------|
| Total developed areas of land:    | 5,005 acres       |
| Residential land use:             | 2,221 acres (44%) |
| Commercial land use:              | 476 acres ( 9%)   |
| Industrial land use:              | 226 acres ( 5%)   |
| Public and quasi-public land use: | 749 acres (15%)   |
| Streets and right-of-ways:        | 1,333 acres (27%) |

If residential streets were combined with residential land use, the total would comprise about 60 percent of the developed area of Redwood City, with the balance divided between commercial, industrial, institutional, and public uses. Residentially developed land is further understood as divided between single-family dwellings, two-to-four-unit dwellings, and other multiple-unit dwellings. While multiple-unit dwellings occupy a relatively small share of the land area, they account for a relatively larger proportion of the population housed, and an even larger proportion of the total number of units in the City.

|                                      |                   |
|--------------------------------------|-------------------|
| Total residential land use:          | 2,221 acres       |
| Single-family dwelling land use:     | 1,687 acres (76%) |
| Two-to-four-unit dwelling land use:  | 289 acres (13%)   |
| Five-or-more-unit dwelling land use: | 245 acres (11%)   |

|                              | Units        | Persons      |
|------------------------------|--------------|--------------|
| Single-family dwellings:     | 10,651 (53%) | 34,068 (63%) |
| Two-to-four-unit dwellings:  | 3,398 (17%)  | 8,133 (15%)  |
| Five-or-more-unit dwellings: | 6,130 (30%)  | 11,657 (22%) |

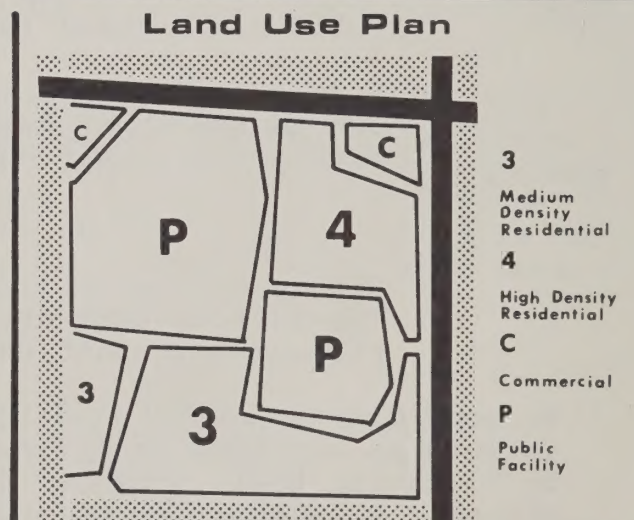
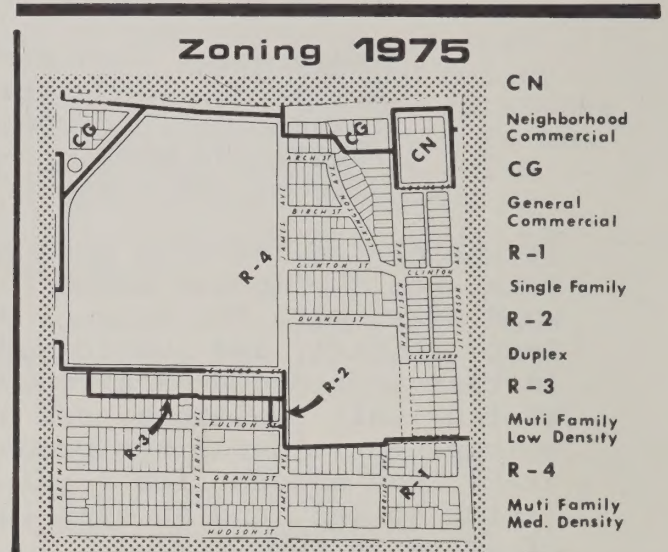
Redwood City's downtown administrative and commercial core is well defined as centered on Broadway and Jefferson Avenue, and embraced by El Camino Real, Brewster Avenue, Veterans Boulevard, and Maple Street. Principal features contained within this core include the San Mateo County Government Center, the Redwood City Civic Center, the Southern Pacific railroad station, Kaiser Hospital, a retail commercial shopping street (currently undergoing revitalization), and several new banks and office buildings.





# LAND USE

- |   |             |   |               |
|---|-------------|---|---------------|
| a | Residential | e | Public        |
| b | Commercial  | f | Recreational  |
| c | Employment  | g | Institutional |
| d | Open Space  |   |               |



## Land Use 1975

- |   |             |    |        |
|---|-------------|----|--------|
| C | COMMERCIAL  | CH | CHURCH |
| R | RESIDENTIAL | S  | SCHOOL |

A section of the City is illustrated above showing the relationship between the existing land uses, the present zoning, and the future Land Use Plan





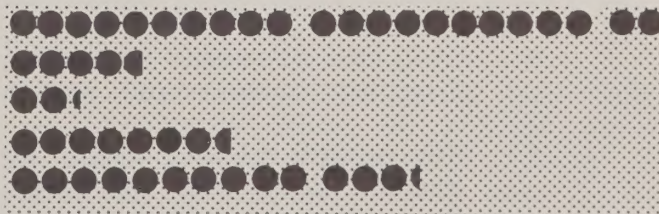
## LAND USE INVENTORY

|                             | ACRES         | %          |
|-----------------------------|---------------|------------|
| <b>CITY TOTAL</b>           | <b>21,560</b> | <b>100</b> |
| Water                       | 9,872         | 46         |
| Land                        | 11,688        | 54         |
| <b>LAND TOTAL</b>           | <b>11,688</b> | <b>100</b> |
| Undeveloped                 | 6,683         | 57         |
| Developed                   | 5,005         | 43         |
| <b>DEVELOPED LAND TOTAL</b> | <b>5,005</b>  | <b>100</b> |
| Residential                 | 2,221         | 44         |
| Commercial                  | 476           | 9          |
| Industrial                  | 226           | 5          |
| Public & Quasi Pub.         | 749           | 15         |
| Streets & Right-of-Ways     | 1,333         | 27         |

### ANALYSIS OF

### DEVELOPED LAND

Residential  
Commercial  
Industrial  
Public & Quasi Pub.  
Streets &  
Right-of-Ways



● = 100 ACRES



The fringes of the downtown, some of the industrial areas and satellite shopping areas, and various aggregations of residential development are far less well defined and, in quite a few cases, indicate a disregard for urban form and functional efficiency. A further, more complete analysis of existing land uses in Redwood City is contained in a report on "Land Uses--Redwood City" prepared by the Redwood City Planning Department, including a separate description of the land uses in each of the City's 24 neighborhoods.

Reference is also made to other reports prepared by the Planning Department, which provide additional information about land uses in Redwood City and their relationships to physical, environmental, social, and economic factors at work in the City: "Population--1960," "Population--1969," "Neighborhoods and Organizations," "Housing," "Natural Features," "Community Facilities and Services," and "Economy."

### C. GOALS

1. Physical Goals and Principles: Channel growth in core areas, avoiding indiscriminate growth patterns--assuring that land use decisions are designed for the community as a whole; allocating community facilities and services so that there is equal access and availability to all neighborhoods; and providing for the continuous improvement of the physical environment of the community.
  - a. Protect integrity of existing single-family areas.
  - b. Encourage homeownership in new developments.
  - c. Restrict high-rise and cluster development in hillside areas so as to protect and preserve the skyline of the hills.
  - d. Encourage development and growth downtown as the City's main commercial center; allow creation and improvement of conveniently-sited satellite shopping areas; and discourage further extension of strip commercial development along arterials, instead promoting a healthy intermittent clustering of commercial enterprises around new off-street parking cores and letting the older, intervening, obsolete commercial buildings and uses be replaced by residential, public, or open space uses.
  - e. Utilize present industrial land area for industry and resist further commercial and/or residential zoning in these areas.
  - f. Encourage higher-density residential development in and around downtown, in a manner compatible with the downtown, in order to reduce reliance on the automobile.



- g. Revise the City's Zoning Ordinance to be consistent with the intent of the General Plan.
  - h. Investigate the "transferable development rights" approach to property development in impacted residential areas.
  - i. Prepare a map showing geological hazard areas including fault zones, mud slide areas, and flood and drainage problem areas, and include historic preservation areas such as historic buildings, redwood groves, and wildflower meadows.
2. Environmental Goals and Principles: Preserve, enhance, and restore the natural environment in the process of present and future development--treating the quality of the environment and design integrity as major factors in all development considerations; restricting land uses which would result in unwarranted land, water, or air pollution, noise, overcrowding, or waste; and conserving natural open space assets consistent with other elements of this General Plan along the waterfront and in the foothills.
- a. Increase neighborhood open space and recreation areas.
  - b. Provide parks, playgrounds, open space, and special recreational facilities for the enjoyment of all age and interest groups.
  - c. Give equal consideration to park land acquisition and full park development.
  - d. Continue to integrate park lands with school sites so that multi-use sites will result.
  - e. Encourage subdividers and developers to set aside land for parks, with the cost of acquiring such park lands to be shared through equitable assessments.
  - f. Encourage agricultural open space uses such as managed wetlands and cut-flower nurseries.
  - g. Encourage the preservation and beneficial restoration of natural marsh lands.
  - h. Utilize the Hetch Hetchy right-of-way as a linear park for beautification and recreation.
3. Social Goals and Principles: Plan for a population in the Redwood City Sphere of Influence of 77,000 by 1980, of 85,000 by 1990, and of 90,000 by the year 2000; improve the efficiency in the delivery of public services to the population; and restrict development in areas of health and safety risks.



- a. Stimulate greater pride and civic responsibility in the people themselves.
  - b. Preserve residential nature and improve attractiveness of neighborhoods.
  - c. Accommodate and encourage diversity and new concepts to improve appearance of the City and provide a wide variety of housing types in residential neighborhoods.
  - d. Move in the direction of a balanced community and away from a predominantly bedroom community.
  - e. Develop proper relationships between living areas and places of work, shopping, and recreation in order to conserve energy, reduce reliance on the automobile, and facilitate the enrichment of human lives through improved opportunities of social interaction.
  - f. Encourage facilities for people with special needs, such as social, educational, recreational, child care, and referral centers for senior citizens and the handicapped.
  - g. Recognize that human rights, personal dignity, and the ecology are as important as property rights.
4. Economic Goals and Principles: Preserve, enhance, and restore a balance and soundness in the economic well-being of the community; promote economic development through land use allocation to insure employment stability; and encourage cultural enrichment through promotion of international trade and investment.
- a. Enhance the City's image in the regional retail and investment market through more efficient land use patterns and better development design.
  - b. Encourage development of the Port of Redwood City and surrounding areas as a diversified commercial-industrial-recreational complex.
  - c. Investigate the establishment of a general service aviation airport in proximity of the Port of Redwood City.
  - d. Develop available human resources through educational and special training programs to assure improved employment levels and adequate manpower for industry, business, and the professions.
  - e. Facilitate the removal of vacant, obsolete commercial and industrial buildings, which lack historical significance, in order to clear the landscape of hindrances to healthy development.



- f. Improve the quality of residential areas and community facilities, increasing their attractiveness to beneficial economic investment.
- g. Cooperate with surrounding communities and governmental jurisdictions in achieving balanced physical, social, and economic development in the region.

#### D. STANDARDS

1. Population Density: Redwood City's developmental policy in the past has been to encourage population growth. Population growth has thus outpaced non-residential development with the result that persons in the labor force greatly outnumber the available jobs within the City or its immediate environs. Indiscriminate emphasis on residential development of all types, without corresponding development of non-residential activities, has left the City with a lopsided property tax and sales tax revenue situation. A gnawing symptom of this kind of imbalance is the necessity for a higher property tax rate than would be required for a given level of services in the community if there were a balance . . . or if there were an advantageous imbalance in the opposite direction.

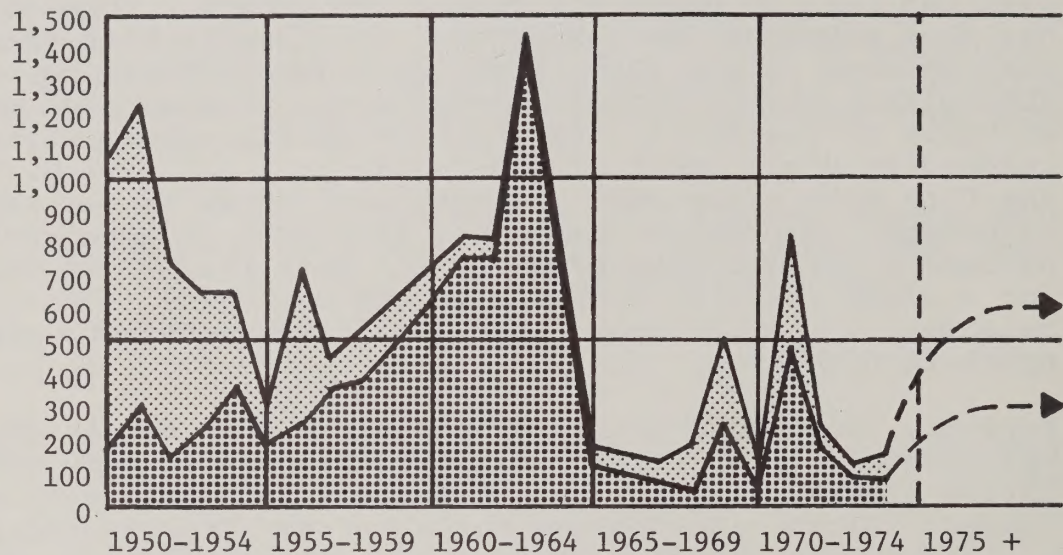
Further, loose zoning that allows ultra-high densities, or developments without density limits, intended to encourage population growth, can have the opposite effect from what was intended. Ultra-high density for long-term, year-round residency is inimical to healthy, sound, and enjoyable living, so, if an ultra-high density development occurs on one or two lots in a block or neighborhood, the effect can be to sterilize the balance of the block or neighborhood against additional developments, because its desirability has been threatened or impaired. Hence, in this way, population growth in the long run is discouraged instead of encouraged. This accounts for the stabilization of the population in many communities long before the theoretical zoning limit has been reached.

Redwood City's population has stabilized since 1970, and even declined slightly, owing in part, at least, to the lowering of the average size of household, in spite of an increase in the total housing supply. The projected population of 90,000 by the year 2000 for the Redwood City Sphere of Influence represents a 25 percent increase over the span of 25 years from today. This represents an average increased need in the housing supply of 300 units per year. But since an increasingly large number of older, aging, and obsolete dwellings will be dropped from the housing supply by the year 2000, substantially more than 300 new units per year will be required to be built to house the projected population. Assuming that one-fourth of the present



housing stock will have disappeared through obsolescence and decay by the year 2000, an average rate of new construction would have to be 600 dwelling units per year over the next 25 years to maintain sufficient housing to accommodate a population of 90,000 by that time. The average residential construction over the past 25 years, by comparison, was around 575 dwelling units per year.

Average annual dwelling unit starts by five year increments from 1950 through 1974, and the target level of 600 dwelling units per year from 1975 onward to the end of the century.

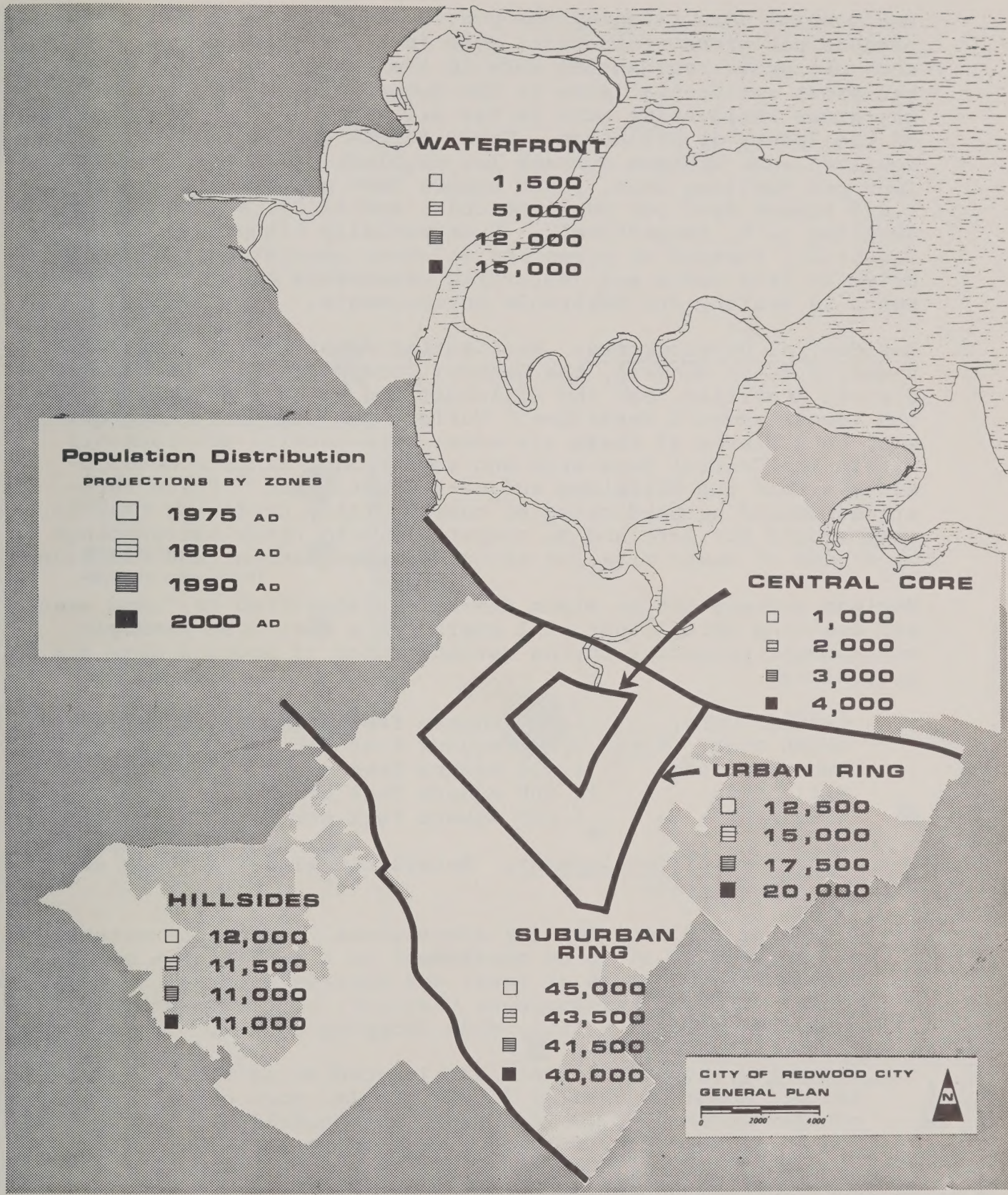


The lower, darker-shaded portion of the graph represents new multi-family dwelling units per year; the upper, lighter-shaded portion represents new single-family dwelling units per year.

Existing and projected populations for zones within the Sphere of Influence are depicted on the Population Distribution Map on the following page, which is divided into five zones, as follows:

| Zone          | 1975   | 1980   | 1990   | 2000   |
|---------------|--------|--------|--------|--------|
| Central Core  | 1,000  | 2,000  | 3,000  | 4,000  |
| Urban Ring    | 12,500 | 15,000 | 17,500 | 20,000 |
| Suburban Ring | 45,000 | 43,500 | 41,500 | 40,000 |
| Hillsides     | 12,000 | 11,500 | 11,000 | 11,000 |
| Waterfront    | 1,500  | 5,000  | 12,000 | 15,000 |
| Total         | 72,000 | 77,000 | 85,000 | 90,000 |





# POPULATION DISTRIBUTION

# LAND USE ELEMENT



Residential population by the year 2000 would reach about 48 persons per gross residential acre in the Central Core, 24 persons per gross residential acre in the Urban Ring, 12 persons per gross residential acre in the Suburban Ring, and six persons per gross residential acre in the Hillside and Waterfront zones of the Sphere of Influence. These levels can be readily achieved with minimum average lot or block areas of 1,500 square feet per dwelling unit, 3,000 square feet per dwelling unit, 6,000 square feet per dwelling unit, and 12,000 square feet per dwelling unit, respectively. Substantially higher allowable densities, instead of promoting a larger population, will simply drive up land costs and jeopardize reasonable housing developments in healthy and desirable environments.

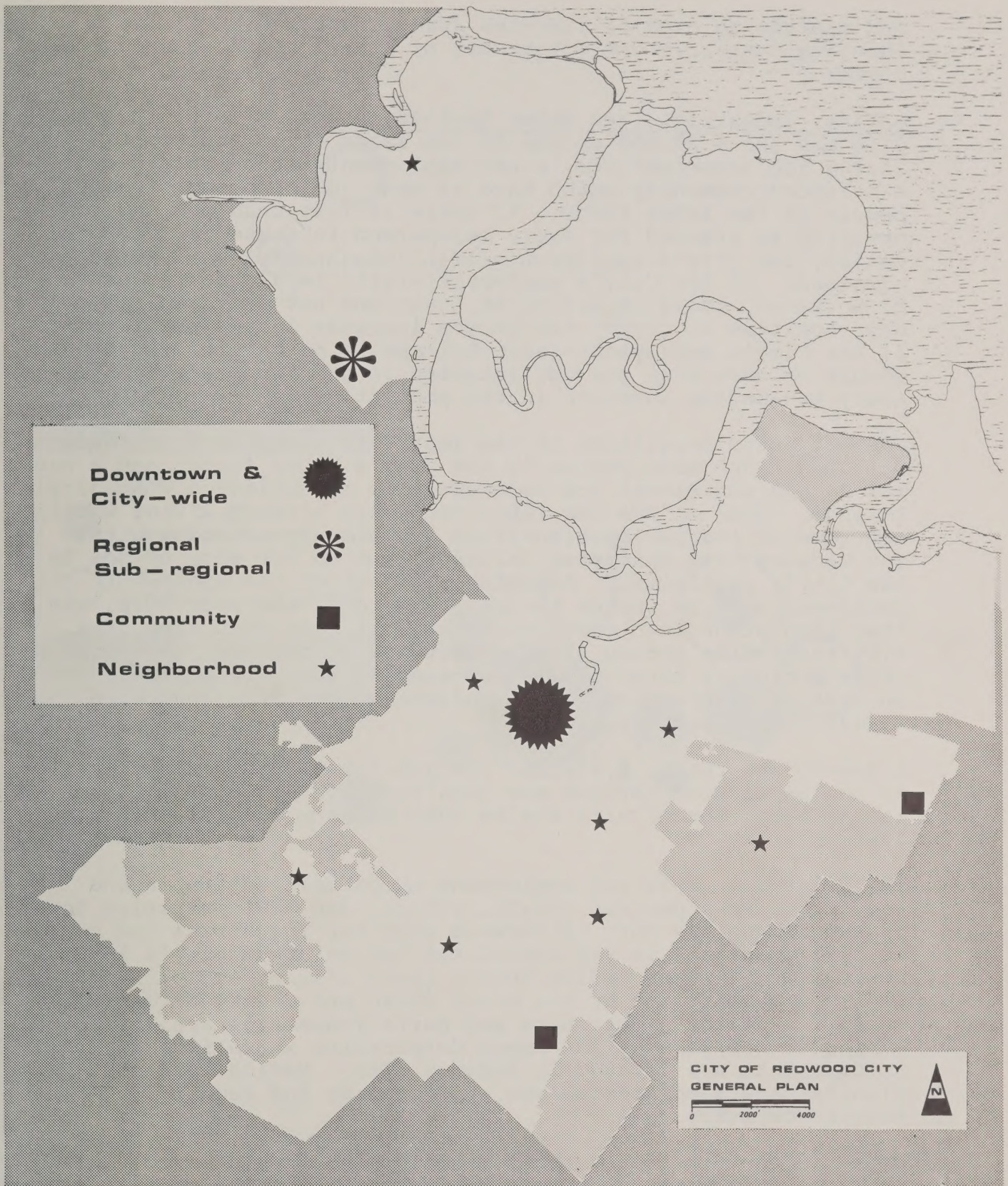
2. Residential Developments: Residential densities may vary within zones, but, in general, the Central Core will have the highest overall densities, and the Hillside and Waterfront will have the lowest overall densities. Variety and community interest will be achieved if there are some lower-density developments within the Central Core area and some higher-density developments within the Hillside and Waterfront areas. These variations should be predicated on compatibility criteria, that is, they should fit into and be compatible with their surroundings by virtue of their size, location, siting, design, and function.

Maximum average lot or block densities, specified in "land area per dwelling unit," that will guarantee a desirable living environment potential in the various zones of Redwood City are, as follows:

|                |                                      |
|----------------|--------------------------------------|
| Central Core:  | 1,500 square feet per dwelling unit  |
| Urban Ring:    | 3,000 square feet per dwelling unit  |
| Suburban Ring: | 6,000 square feet per dwelling unit  |
| Hillside:      | 12,000 square feet per dwelling unit |
| Waterfront:    | 6,000 square feet per dwelling unit  |

3. Retail Commercial Development: Retail commercial centers are of three general types:
  - a. City-wide and regional (or sub-regional) shopping centers are located so as to be convenient to a market area of 100,000 people, more or less, and contain an area of 25-75 acres. The Central Business District, or the Downtown, is characteristic of a "city-wide shopping center."
  - b. Community shopping centers are located so as to be convenient to a market area of 25,000 people, more or less, and contain an area of 10-25 acres. The Woodside Plaza Shopping Center is characteristic of a "community shopping center."
  - c. Neighborhood shopping centers are located so as to be convenient to a market area of 10,000 people, more or less,





# **RETAIL SHOPPING CENTERS**

**LAND USE  
ELEMENT**



and contain an area of five-ten acres. The Roosevelt Plaza Shopping Center is characteristic of a "neighborhood shopping center."

4. Office, Industrial, and Other Employment Development: Redwood City has about 27,000 people in the labor force and about 21,000 job opportunities, a net employment-ratio imbalance. A balanced community would have as many job opportunities as people in the labor force. If there is less than one new job opportunity created for every two-person increase in the population, the City's employment-ratio imbalance will be further worsened. If the City's employment-ratio imbalance is not to be worsened, there should be at least one net increase in job opportunities for every two-person increase in the population. If the City's employment-ratio balance is to be improved, there should be more than one net increase in job opportunities for every two-person increase in the population.

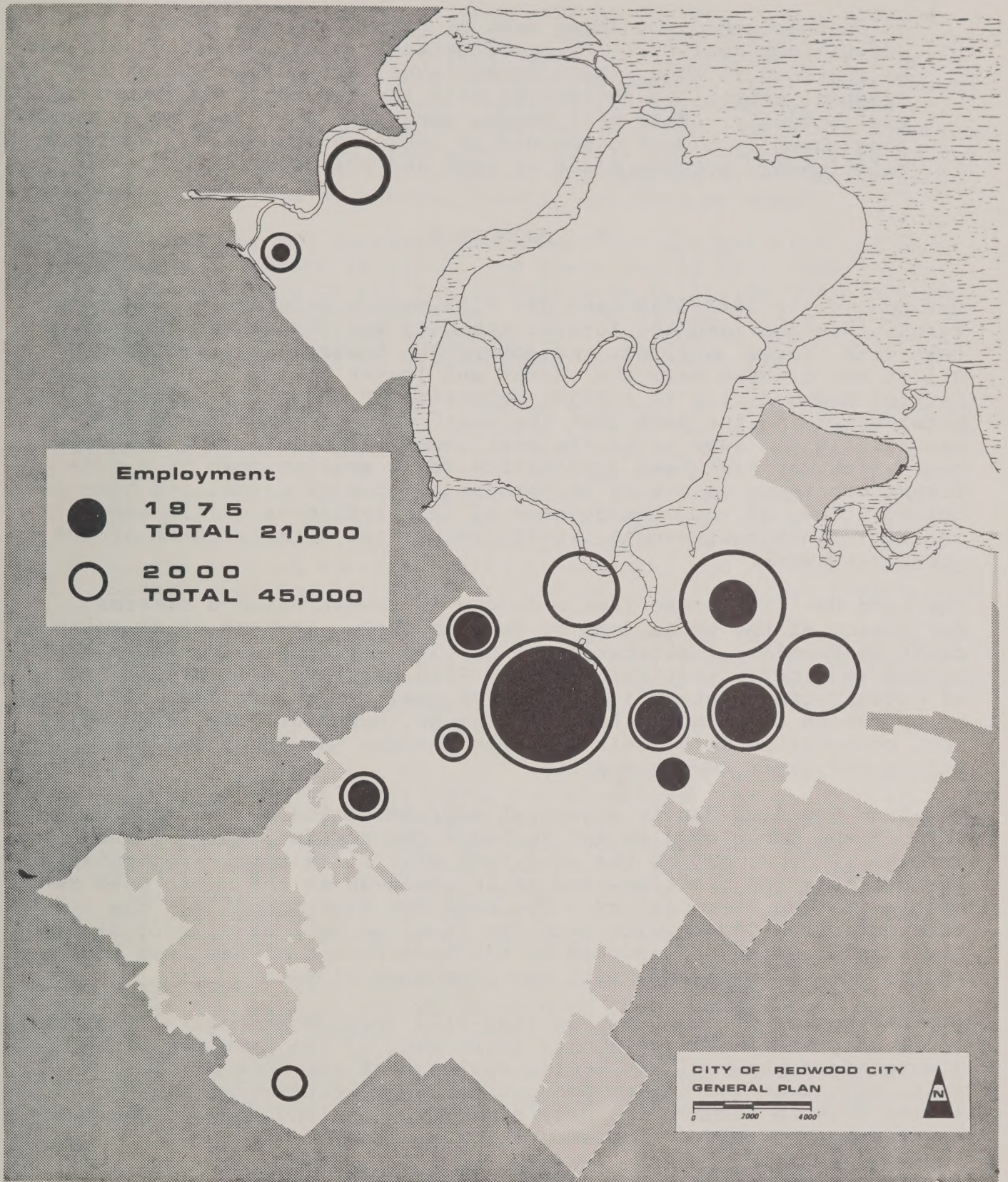
The projected population in the year 2000 suggests that there will be 18,000 more people in the City's labor force, and a need for 24,000 additional job opportunities to achieve a community balance. Some of the new labor force are already living within, and some of the job opportunities are already existing within the Redwood City Sphere of Influence but do not show up now in the City's statistics. Assuming that all of the Sphere of Influence will be inside the City Limits by the year 2000, and that absorption into the City is gradual over that time, the City statistics should show an increase of two new job opportunities for every three-person increase in the City's population in order to achieve community balance by the year 2000 with 45,000 job opportunities.

A one-to-one ratio, i.e., one new job for each additional person in the population (or two new jobs for each additional person in the labor force) will strike that balance earlier, by around 1990.

The principal areas for employment opportunities are in and around the Downtown for retail, office, and administrative jobs; in and around the Port of Redwood City for industrial and commercial jobs; and in and around the two major hospitals for medical and related office jobs. Legal offices and title companies are attracted by the Court House and County Government Center. Related electronics and parts industries are attracted by industries such as the Ampex Corporation whose international headquarters are located in Redwood City. Medical offices, clinics, and laboratories are attracted by the Sequoia and Kaiser Hospitals.

Areas in the City set aside for employment should be conveniently located with respect to the labor force, transportation, and other necessary services. And where growth and expansion





**EMPLOYMENT**

**LAND USE  
ELEMENT**



is contemplated, the areas must be attractive and possess prestigious quality. Job opportunities in the future should not be confined to huge, isolated enclaves, but should, to an increasing extent, be interwoven with the neighborhood fabric of the community. This will become more important in time as the long commute to work gives way to the more economical, intimate relationship between place of work and residence.

## E. PROPOSALS

Redwood City's 1975-2000 Land Use Plan echoes existing land use patterns. Now and into the future, the City has its center in a Downtown with stores, offices, and government houses; residential densities are highest near the center and lowest on the fringe; and the Port of Redwood City is a major generator of industrial activity. Notwithstanding the fact that the basic form of the City remains essentially the same as in the past, some of the existing development which may have been appropriate for a smaller town of a different era shows up now as inappropriate, out-of-place, and haphazard. Some of the consequences of this left-over development include: unattractiveness, inefficiency, and deterioration of the urban framework.

The Land Use Plan prescribes a course to re-establish a clearer definition of the urban form of Redwood City. Instead of allowing a drift to formless scatteration of any and all uses and activities in random and inefficient fashion, the Plan portrays a sense and spirit of organization that will enhance the quality of life and efficiency of operation in this limited environment, bounded close in by adjacent communities with their own organization and their own life styles for their own population.

The Land Use Plan Map is a general representation of the general form of the urban complex and reflects the new and evolving urban form as it grows out of the city from what it is today--recognizing its heritage and prestige--and as it proceeds on the short path remaining to the 21st Century. The Land Use Plan recognizes the existence of a County-wide Land Use Plan, as well as a Regional Land Use Plan prepared and adopted by the Association of Bay Area Governments, and is compatible with and promotive of both.

Implementation of the Land Use Plan will come about naturally as the level of pride in the community is raised, as the problems of a disorganized physical and social environment are more painfully felt, and as an increasing proportion of the citizenry takes an active role in forming the City's policies on land use and community development. Tools of implementation include:

1. Zoning Ordinance: The Zoning Ordinance is the primary tool available, within the framework of California Law, for the ad-



ministration of land use standards on private land. Redwood City has had a Zoning Ordinance since 1921, which has been comprehensively revised in 1925, 1941, 1948, and 1964. The 1948 revision was in response to the 1947 General Plan. Even though the 1947 General Plan was repealed in 1957, and not replaced, the 1948 Zoning Ordinance remained in effect until the adoption of the 1964 Zoning Ordinance. This latter comprehensive Zoning Ordinance revision was prepared and adopted at a time when the City again had no General Plan in any form or manner.

Relatedness and consistency between the General Plan and the Zoning Ordinance is vital, and there should be a complete and ongoing review of the Zoning Ordinance following the adoption of the revised General Plan. The Zoning Map should further be reviewed and revised as appropriate, following the adoption of each Special Area or Neighborhood Development Plan.

2. Subdivision Regulations: New development is generally preceded by subdivision of land. Redwood City's Subdivision Regulations were adopted in 1964 and have been revised only twice since that time. The City's Subdivision Regulations are in need of a massive overhaul, and this effort should be undertaken at once. The new State Subdivision Map Act provisions are at variance with the Subdivision Ordinance in several respects, primarily in the area of administrative procedures, and in such cases the Subdivision Map Act takes precedence over the local regulations.

Local standards must be reviewed and updated in order to carry out the objectives of the General Plan. These include design and improvement standards, as well as considerations of grading, land fill, storm drainage, open space, and conservation in general.

3. Neighborhood Rehabilitation: The quality of a living environment goes beyond a desirable and efficient land use pattern, to that of the physical conditions of buildings themselves. As the City becomes older, more and more buildings are becoming older as well. And with age comes deterioration and, ultimately, dilapidation. This deterioration cycle can be slowed down, and perhaps stopped altogether, with a proper program of building maintenance, and timely building replacement.

A systematic code enforcement program should be commenced now under the funding available through the Federal Housing and Community Development Act Block Grant. The primary aim of such a program should be to upgrade the quality of the City's housing stock, but it should be comprehensive enough to include property maintenance improvement, in general, along with the improvement of buildings.

4. Redevelopment: In areas of the City where deterioration has progressed beyond a point of feasible rehabilitation, a rede-



velopment process should be undertaken, wherein the City would be empowered to buy, clear, and prepare the land for resale, and then re-sell land and property according to a detailed redevelopment plan.

5. Architectural and Landscape Review: Redwood City has an effective ongoing program of Architectural Control which includes review of landscaping, and which has brought about a marked improvement in the appearance of the City in the past five years. The areas that had suffered the most from an earlier approach to development, akin to "defoliation," were the central commercial and fringe industrial areas. The expanse between El Camino Real and the Bayshore Freeway, particularly, shows the signs of a hundred years of near-total neglect of the maintenance needs of the urban landscape.

This trend is now being reversed by the efforts of the City's Architectural Committee. Numerous examples of high-quality architecture and landscaping are now to be seen in the commercial and industrial sections of the City.

The current street improvements along Broadway in the central business district are another example of bringing foliage and design quality back to an area that has been without it for as many decades as most can remember. The General Plan objectives are furthered by maintenance of this policy.

6. Park Land Acquisition and Development: The park lands referred to here are those intended to clarify and enhance the urban form. They include greenbelts, buffers, and landscaped entry features. The precise location and extent of these urban design elements will appear in the more detailed Neighborhood Development Plans recommended to follow the adoption of the revised General Plan.

Other details not apparent in a General Plan will become manifest in Special Area and Neighborhood Development Plans which will be formulated in greater and more complete detail than is possible at the General Plan scale of consideration.

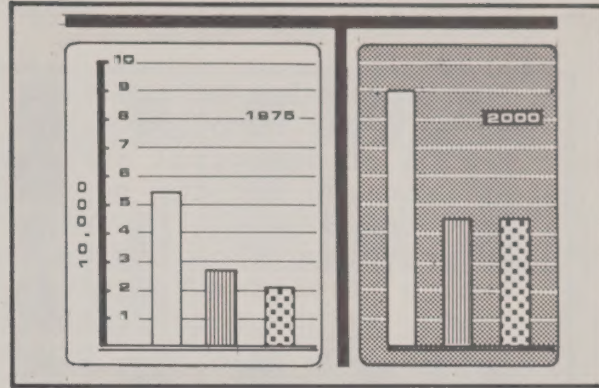
7. Economic Development: The City should enter into an active, cooperative arrangement with the Port of Redwood City, the local Chamber of Commerce, and the San Mateo County Development Association to attract commercial, office, and industrial development to Redwood City--the primary purpose of which development is to create jobs for the City's current surplus of persons in the labor force over available local jobs, and to generate new and additional sources of municipal revenues to help pay the costs of necessary and desirable local public improvements.



## Local employment opportunities for an equivalent labor force

### REDWOOD CITY

|             |                                                                                   | 1975   | 2000   |
|-------------|-----------------------------------------------------------------------------------|--------|--------|
| Population  |  | 54,000 | 90,000 |
| Labor Force |  | 27,000 | 45,000 |
| Jobs        |  | 21,000 | 45,000 |



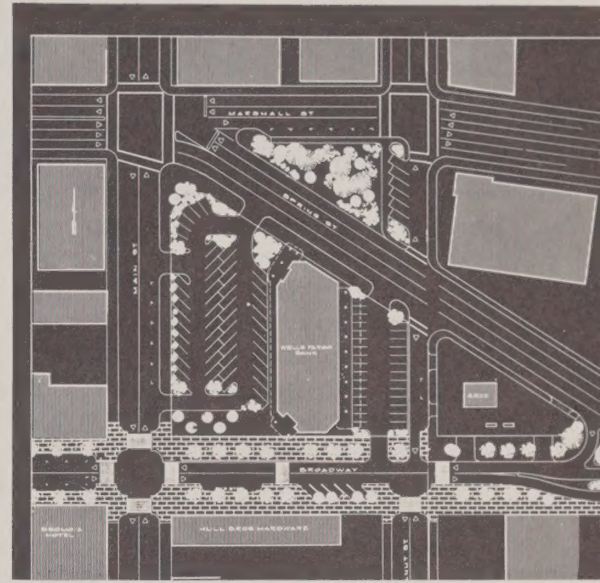
## Some Land Use Goals

**Physical** ► Channel growth in core areas, avoiding indiscriminate growth patterns . . . encourage development and growth downtown as the City's main commercial center



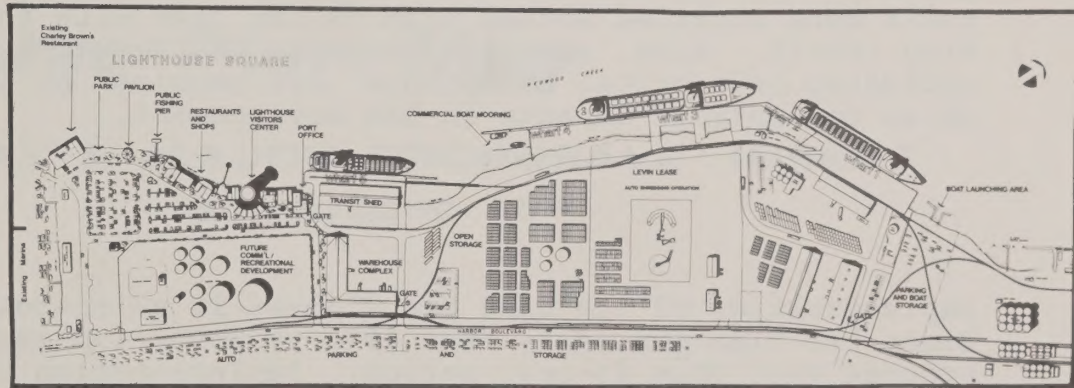
### Environmental

► Preserve, enhance, and restore the natural environment in the process of present and future development . . . encourage the preservation and beneficial restoration of natural marsh lands



### Economic

► Preserve, enhance, and restore a balance and soundness in the economic well-being of the community . . . encourage development of the Port of Redwood City and surrounding areas as a diversified commercial-industrial-recreational complex



### Social

► Plan for a population in the Redwood City Sphere of Influence of 77,000 by 1980, of 85,000 by 1990, and of 90,000 by the year 2000 . . . preserve residential nature and improve attractiveness of neighborhoods





## F. ENVIRONMENTAL ASSESSMENT

Implementation of the Land Use Element of the General Plan will bring order into the urban fabric, increase efficiency for the provision of municipal services, and improve the quality of the living environment for the population. Most proposals contained in the Land Use Element, by their very nature, will not have a significant adverse impact on the environment. Examples include proposals relating to citizen participation, revisions to the Subdivision Ordinance, neighborhood rehabilitation, architectural and landscape review, and park land acquisition and development.

Proposals that may have a significant impact on the environment, depending on how they are carried out, include revisions to the Land Use Plan Map, revisions to the Zoning Ordinance, redevelopment, and commercial and industrial development. The nature and degree of impact cannot be assessed in a meaningful way, however, until specific projects are brought forth for implementation.

Sensitive areas of concern include the Waterfront, the hillsides, and lands currently used for agriculture, floraculture, and other resource production. The Land Use Plan Map shows new employment development in the Port of Redwood City and adjoining low-lying diked-off lands in the baylands. These are particularly sensitive areas in respect to environmental protection and the San Francisco Bay ecology. Concerns include the effect on wildlife, flora, air and water quality, climate, and demand on public services such as transportation and utilities.

Special Area and Neighborhood Development Plans will have to be subjected to a thorough Environmental Impact review process owing to their more detailed nature than is the case with the revised General Plan itself. Also, specific projects for development of any kind, excluding Categorical Exemptions, are required by law to be evaluated as to possible impacts on the environment.

## G. IMPLEMENTATION

Implementation of the Land Use Element is an on-going process. Since the Plan period is from 1975 to 2000, implementation would proceed over this 25-year period. Implementation of specific detailed proposals growing out of Special Area and Neighborhood Development Plans will often be for shorter-term projects with more precise scheduling determined than can be assigned to the generalized proposals of the revised General Plan.



**LAND USE ELEMENT  
PROPOSALS**

1975- 1980- 1985- 1990- 1995-  
80 85 90 95 2000

|                                          |
|------------------------------------------|
| 1. Zoning Ordinance Revision             |
| 2. Subdivision Code Revision             |
| 3. Neighborhood Rehabilitation           |
| 4. Redevelopment                         |
| 5. Architectural and Landscape Review    |
| 6. Park Land Acquisition and Development |
| 7. Economic Development                  |

|   |   |   |   |   |
|---|---|---|---|---|
| ● | ● | ● | ● | ● |
| ● |   | ● |   | ● |
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| ● | ● | ● | ● |   |
| ● | ● | ● | ● | ● |

# Land Use Plan Map

Refer to:

**SUMMARY & MAJOR PROPOSALS INSERT**









**CIRCULATION**

**2**





## A. PURPOSE

The CIRCULATION ELEMENT of the General Plan seeks to set new policies for the future, with more emphasis on mass transit, bicycles, and pedestrians, and less emphasis on private automobiles, as the primary movers of people and goods. It is the further purpose of this Circulation Element to minimize conflicts in the circulation system and to provide alternate forms of transportation which will be beneficial to the public and to the functioning of the entire circulation system itself. The Circulation Element, along with the total General Plan, by design, is a tool by which the City can eventually reshape its form and create a better living environment for its citizens.

In recent history, the circulation system was concerned primarily with the movement of vehicles. Today, the public is becoming more interested in alternative modes of travel for reasons of the high cost of individual automobile transportation; a growing scarcity and unreliable availability of fossil fuels; and an increasing concern for the seriously adverse effects on human beings, and the environment, of the by-products of unrestrained auto usage.

A convenient, efficient, and cost-effective form of mass transit should be provided to commuters from Redwood City and to commuters going through Redwood City. A high speed system for moving people quickly and efficiently will help decrease automobile traffic by making it more attractive to ride a mass transit system. By putting more people into this type of travel, there will result less pollution and less congestion, and less space will be required.

As new techniques are discovered for moving people and goods, it will be easier to build, operate, and maintain a large transit system. Redwood City and the cities on the San Francisco Peninsula should be ready to accept the responsibility of providing this means of transportation to those people who need it and will find it advantageous to use.

Greater usage of public transportation as improved in accordance with the Plan, and greater use of bicycles and planned bikeways, coupled with greater-than-recent ratios of passenger occupancy of automobiles, will all be appropriate public manifestations to help realize the Plan and the objectives upon which it is based.

Accordingly, were such better usages and ratios not actually realized to practical levels appropriate for Plan fulfillment, with respect especially to the limited number of road sections in the General Plan Study Area where capacity deficiencies for 1990 are otherwise significant, then the community would have to consider one or a combination of other alternatives, including: (a) acceptance of greater levels of vehicular congestion during peak periods; (b) curtailment of some trip-making by motor vehicles during



such periods; and/or (c) further possible road improvements including possible additional traffic lanes. Road sections particularly sensitive in this respect in the Study Area include the northern portion of Alameda de las Pulgas, the northern portion of U.S. 101 Freeway, Interstate 280 Freeway, and Marine World Parkway.

## B. EXISTING CONDITIONS

A report on Traffic and Transportation in Redwood City, published by the Redwood City Planning Department in June 1971, serves as a backdrop of existing conditions for the formulation of traffic and transportation proposals in the Circulation Element of the General Plan. The portrayal of existing conditions in that report is augmented by the following more recent observations on the status of the automobile in the transportation picture, and the evolution of alternative modes of travel.

1. The Automobile: The private automobile has been the major mode of transportation in Redwood City for 55 years. Because there has been so much importance placed on the automobile, an enormous amount of land and resources have been allocated to perpetuate its use. It has been estimated that 43 percent of Redwood City's developed land area is being used by the automobile: 25 percent for street rights-of-way and at least 18 percent for off-street parking. Most of this land is in public ownership and, therefore, not taxable. Recently there has been much publicity about the shortages of petroleum and its refined products upon which the manufacture and operation of an automobile depends. Land use policies of the past, influenced by the prolific availability of automobiles, resulting in dispersal of development over the countryside in quest of the cheapest land, have in turn given rise and compulsion to the two- and three-car family. But because the price of an automobile and its operation have increased to a great extent of late, more and more households are finding it increasingly difficult to maintain more than one automobile. Gasoline prices have doubled in the last two years, and people are realizing that this cost will continue to increase along with other disincentives on auto usage imposed by law.

Motor vehicles are also the largest contributor to air pollution in the Bay Area. About 95 percent of the Bay Area's carbon monoxide comes from motor vehicles, and 62 percent of the nitrogen dioxide in the Bay Area is produced by automobile exhaust (Air Pollution and the San Francisco Bay Area, January 1975). The internal combustion engines used in automobiles are only 15 percent efficient, and the remaining 85 percent of the energy is emitted as heat and exhaust gases. This loss is the greatest contributor to particulate and gas emissions in the Bay Area.



In 1973 a traffic study was made for Redwood City and the unincorporated areas within its sphere of influence. This study was to determine where the major traffic deficiencies would be in 1990. Information was gathered concerning existing and future population and employment centers, and future anticipated road networks. This information was divided into 25 zones for purposes of determining travel movements. These travel movements were converted to numbers of trips and calculated across test lines. These test lines (pages 50 and 51) are the basis for determining network deficiencies. A total vehicle capacity was determined for each test line and compared with the year 2000 network volumes shown on pages 50 and 51. Certain projects have been proposed in the implementation section to alleviate deficiencies between capacities and future traffic volumes.

The capacities for the existing network were determined by using primarily a level of service "C." As defined in the "Highway Capacity Manual," 1965, published as Highway Research Board Special Report 87, Service Level C represents stable vehicular traffic flow with generally acceptable delays: on freeways, average operating speeds of 50-55 miles per hour, on urban and suburban arterial streets 20-25 miles per hour, and on downtown streets 15-20 miles per hour. Service Level D, as defined in the same manual, represents generally a road condition approaching unstable flow with generally tolerable delays: average operating speeds of 40-50 miles per hour on freeways, 15-20 miles per hour on arterials, and 10-15 miles per hour on downtown streets. Service Level A represents generally free vehicular flow; Level B, the higher ranges of stable flow; Level E, unstable flow with intolerable delays; and Level F, jammed stop-and-go conditions in general. For the purposes of this study, Service Levels C and D are of greatest interest in balancing potential road traffic demands with possible road and other transportation improvements and considerations.

2. Mass Transit: The only fixed-rail mass transit corridor through Redwood City is the Southern Pacific Railroad. The tracks are located east of El Camino Real and parallel to it. There are two lines, one northbound and the other southbound. The station facilities are located adjacent to the tracks between Jefferson Avenue and Broadway. The rail system handles both freight and passenger operations on the same tracks. At the present time, there are trains every 10 to 15 minutes during the morning and evening rush hours and then about one each hour during the day and evening. One major drawback of the system is its terminal location at 4th Street and Townsend Avenue in San Francisco. This location is far enough away from the financial district that riders must make a long walk or take a bus or taxi for the last leg of the trip to work, or other purpose of their trip.



Numerous studies have been made investigating the feasibility of extending the BART system into San Mateo County. In Redwood City the corridor for BART would parallel the existing Southern Pacific Railroad tracks. One proposal would terminate the line in downtown Redwood City, a proposal thus far deemed to be unacceptable to the City, because it would require many more parking areas than are available without the removal of many productive buildings. There are other proposals showing the terminus of the BART line in Menlo Park or at some location in Santa Clara County. The proposed Redwood City transit station would be located between Jefferson Avenue and Maple Street. This location would give easy access to commuters going to the City and County government centers and the office and shopping areas in Downtown. There would be north-south feeder bus lines to augment the rail system.

At present, there are three bus systems operating in Redwood City. One is the Greyhound Bus Lines which run along El Camino Real from Santa Clara County to San Francisco, with a station on Brewster Avenue and several stops along El Camino Real in Redwood City. The number of passengers on this system is quite low, and there are no available figures on the ridership from Redwood City. The bus station-terminal is located on Brewster Avenue just west of the Southern Pacific Railroad tracks.

The second system is the Redwood City Municipal Transit System which has recently come under authority of the San Mateo County Transit District. There are five routes--Farm Hill, Sequoia, Roosevelt, Marsh Manor, and Woodside, which cover all areas of Redwood City except Redwood Shores. Most Redwood City residents are only about two to three blocks from a bus route. This is accomplished by having an outbound-inbound loop system instead of a straight line system. The system carries approximately 1,500 persons per day. All of the buses are small, large-windowed mini-buses with air conditioning. There are regular stops along each of the routes, but it is possible to board buses at other locations on the route. The Municipal Transit System terminal is located adjacent to the Southern Pacific Railroad station near Broadway.

A third bus system in the area is the school bus system. These buses, operated separately by the elementary and high school districts, are used mainly in the morning to take children to school and in mid-afternoon to take them home again. A few of the children are taken home from school at mid-day. During the rest of the day, the buses are idle unless there is a field trip or a sports event.

3. Bicycles and Pedestrians: Bicycles are once again a significant mode of travel. The resurgence of bicycles has come about for several reasons. First, it is acceptable to ride a bicycle because of the conservation movement, and it is good exercise.



When gasoline became short in supply, the bicycle was an alternate form of transportation. And then, finally, with the increase in gasoline prices, many people have decided to stay on bicycles. People may be riding bicycles for several reasons-- it's healthier, it's cheaper than any mode of transportation except walking, and it is non-polluting; but, whatever the reason, more people are riding bicycles for work and pleasure every year. The primary problem of the bicycle rider is his conflict with the automobile. Since the automobile weighs over 100 times as much as the bicycle, it is obvious that the cyclist would lose in a collision.

Due to mounting demands of, and increasing emphasis on the automobile until very recently, the pedestrian has had to accept a lower priority in the transportation system. Most streets and traffic control systems give right-of-way to vehicles, and the pedestrian must wait for a full signal change before he is allowed to cross a street, and then often must compete with turning movements of automobiles for space on the asphalt pavement. Because so much attention has been given to the automobile, most features in our cityscape are built around that one travel mode. Street lights and commercial signs tower above the pedestrians, signs and stop lights clutter intersections, and streets and sidewalks are scientifically designed to accommodate the automobile's movements and maneuvering capabilities.

4. Air and Water Transportation: There are no airport facilities within Redwood City, but the San Carlos County Airport is surrounded on three sides by Redwood City. At the present time, this airport has one runway 2,600 feet long and averages approximately 850 takeoffs and landings each day.

The Port of Redwood City is the only deep water port in the south Bay. Its operation serves a specialized interest in shipping. At the present time steel, salt, and petroleum products are the primary goods moving through the port facilities. The shipping channel is approximately 30 feet deep at mean low tide, which is considered the minimum for large ships. Automobile traffic uses Harbor Boulevard which is a two-lane road that interchanges with Bayshore Freeway. There is a Southern Pacific Railroad spur that is on port property.

### C. GOALS

1. In order to conserve our rapidly diminishing resources and our environmental surroundings, the use of the automobile (as we know it today) should be discouraged as other more efficient modes of transportation are encouraged.



2. The amount of unessential pavement in Redwood City should be reduced each year.

Many streets in Redwood City are built at a width comparable to arterial standards but which do not carry a significant amount of traffic. It is feasible to rebuild such streets and narrow them to local street standards for use primarily by the adjacent property owners. A narrower street would allow relinquishment of portions of the rights-of-way to abutting private properties, particularly for more landscaping, especially trees that will have room to grow without disturbing the paving. In some cases this type of street system could get by with only one sidewalk. If there were less paving, less maintenance would be required by the City to keep the streets in good condition.

3. The number and lengths of shopping trips should be shortened, and, when possible through land use controls, the City should provide for shopping areas close and convenient to each neighborhood.

These shopping areas should be easily accessible by bicycle and pedestrian pathways. Where feasible, residential living areas should be combined with commercial areas to help eliminate unneeded shopping trips. Commercial centers should be designed to provide the shops necessary to provide the goods and services needed for households. The use of innovative designs in housing may help achieve this goal.

4. If the automobile is to exist, other forms of propulsion than currently in use should be encouraged.

It is possible that alternative forms of propulsion for the automobile will be devised that will not require gasoline and will not cause any pollution. These new solutions to our existing problems are not readily available but should be encouraged for future use.

5. No more through automobile traffic corridors should be built in Redwood City.

It has been shown that a major portion of traffic in Redwood City does not have its origin or destination in Redwood City. To keep this large amount of traffic from affecting the internal traffic, there should be no more through traffic corridors. Presently, there are four major corridors that serve through traffic; they are the Bayshore Freeway, El Camino Real, Interstate 280, and Woodside Road. Any improvements to other streets that might be used as major traffic corridors should not be allowed, and any new construction that would allow



more cars on existing corridors should not be allowed.

6. Certain street improvement projects should be approved to increase safety and help traffic circulation as a short-term improvement to the system.
  - a. Since the automobile will continue to be the major mode of transportation, streets should be maintained for ease of circulation and safety.
  - b. An approach to keep through traffic off of residential streets are traffic diverters. The Circulation Element designates major collector streets on which through traffic is to be concentrated. As arterial congestion has increased, more drivers have adopted shortcut routes along formerly quiet neighborhood streets. Diverters, normally a diagonal barrier across a four-way intersection, force traffic to turn back on to the arterial system.
7. Establish a fixed-rail system which adequately serves the population.

The existing Southern Pacific Railroad system furnishes much of what is needed for a rail rapid transit system, and could be improved if changes in the types of cars and engines were made to make the ride more comfortable for the passengers and quieter for people living and working along the corridor. This corridor extends from San Francisco to San Jose, with stops at most communities along the way. Trains should be run with less headway times throughout the day. This would encourage use of the system for shopping and visiting trips. The system must be easy to use and comfortable. If parking is not provided, there should be an adequate feeder bus system to each of the stations. The method of collecting fares should be simple and economical. For regular commuters, a monthly billing or credit card service should be provided.

8. The fixed-rail system should be coordinated with other transit systems in the region.
  - a. The principal disadvantage of the present system is that it is not coordinated with other elements of mass transit in the region; it is geared primarily to serve travel to and from San Francisco for suburbanites working in San Francisco and sleeping in a string of communities along the Peninsula.
  - b. To attract patrons, the fixed-rail system should be coordinated with all mass transit systems in the region. If one rapid transit system is used on the Peninsula and the



rest of the region has a different rail system, then the purpose of the system has been defeated. People will only use the system if it is the quickest and easiest way to get from one place to another. If the ride is complicated by transfers from one terminal to another, and by schedules that aren't coordinated, people will opt instead for some other form of transportation, such as the automobile.

9. The existing Southern Pacific Railroad right-of-way should be used for a fixed-rail rapid transit system.

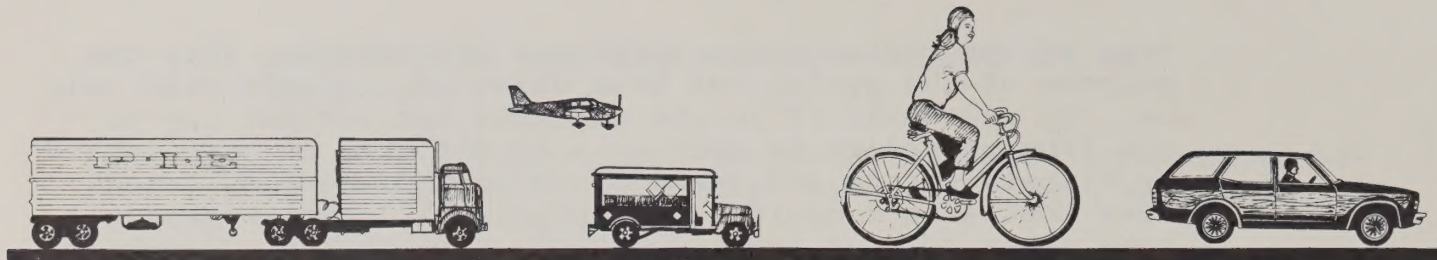
Of the four major corridors through Redwood City, there is one that would best serve the needs of this City concerning rail rapid transit. The existing Southern Pacific Railroad right-of-way should be used for a future transit system. It is a relatively straight corridor passing through the populated areas of the Peninsula, and it extends to Southern California. It is near shopping areas in Redwood City and is close to the major employment centers. There would be less disruption to existing facilities, because a right-of-way already exists. It is also near the geographic and population center of the City. Other corridors for fixed-rail mass transit, such as the Bayshore Freeway and El Camino Real, should not be used.

10. The rate structure of the mass transit system should not discourage short distance trips.

The present rate structure discourages short trips by making them relatively expensive. Because of this rate structure, persons making short shopping trips usually travel by automobile.

11. The bus system should be clean, convenient, and easy to use.
  - a. The existing loop system has been criticized as being more confusing than a straight line system. A larger number of people are, however, adequately served by the bus routes. Straight line bus routes would require additional routes and equipment. A bus system can be effective only if it serves the needs of people.
  - b. Even though schedules can be picked up at various places around the City, most people do not carry a schedule with them and, therefore, do not know when the next bus is coming. It may even be possible at some future time to install clocks at the bus stops that show when the next bus is due.
  - c. To reduce the duplication of service, and to effect economies in cost and fuel, continuing study and cooperation by the school bus systems and the San Mateo County Transit



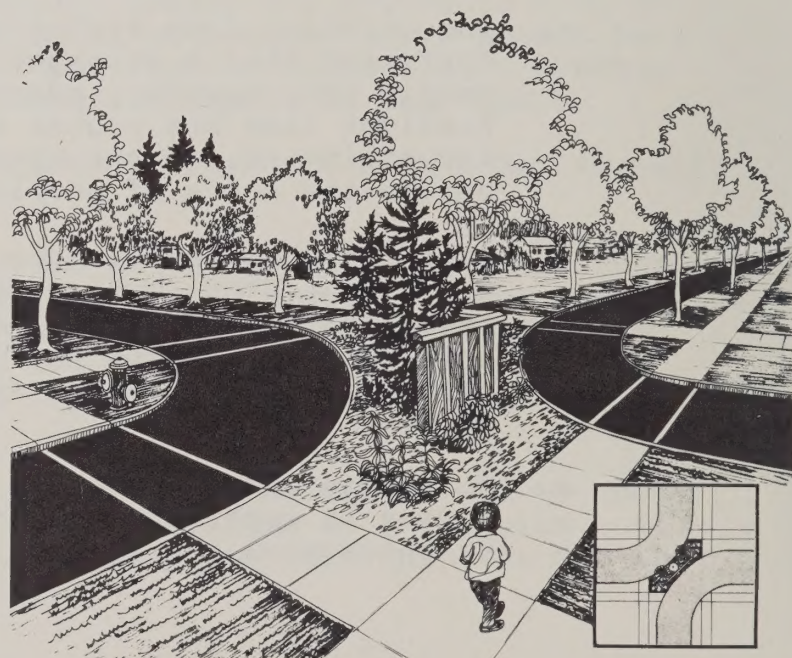


# CIRCULATION

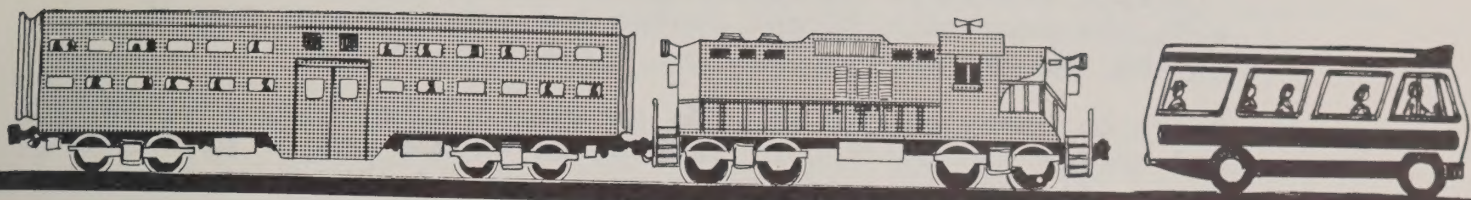


## STREET DIVERTERS

An approach to keep through traffic off of minor streets . . . the upper right-hand drawing illustrates an existing diverter downtown diverting Hamilton Street from Broadway . . . the lower right-hand drawing shows another kind of street diverter that reorganizes a four-way intersection

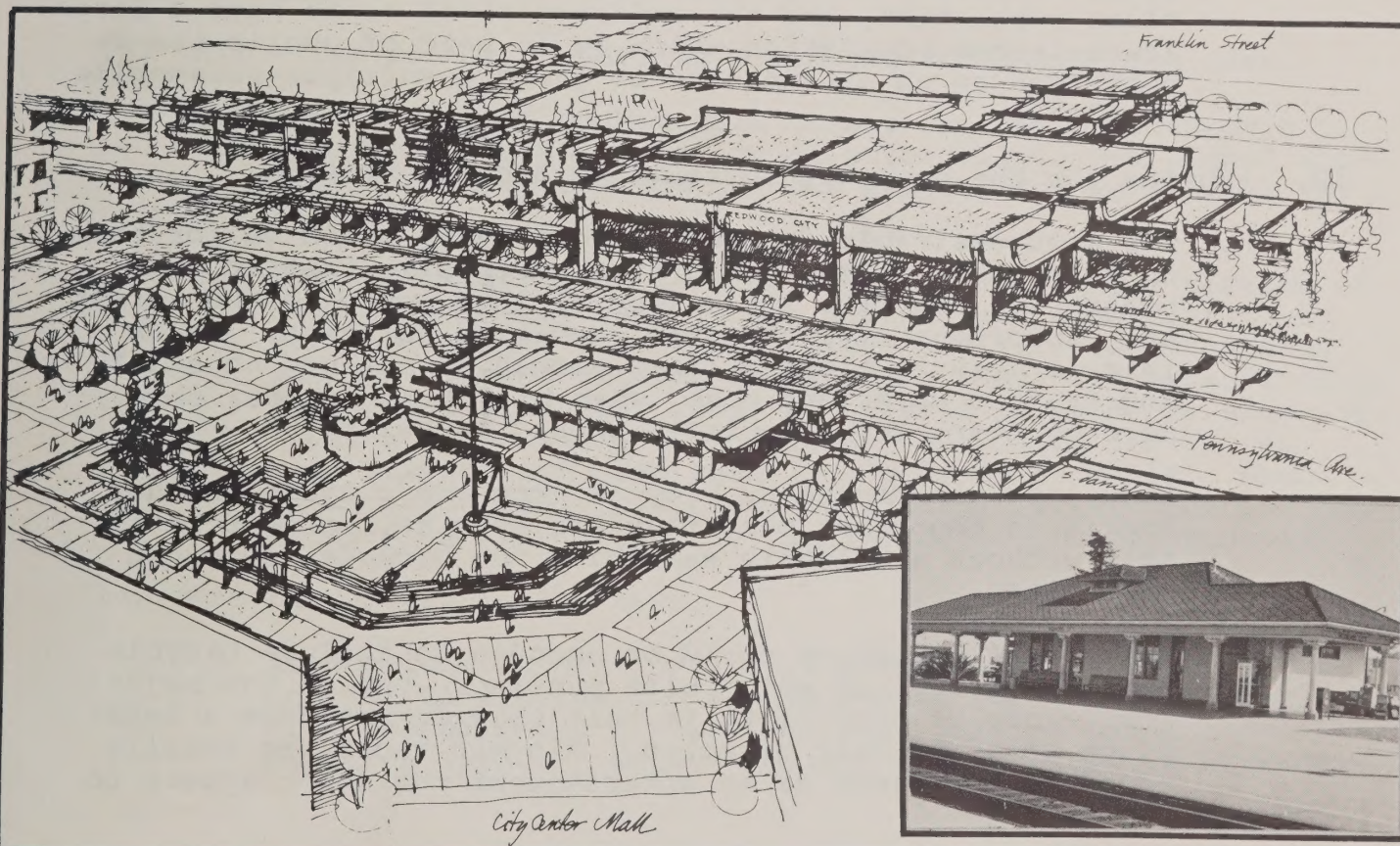
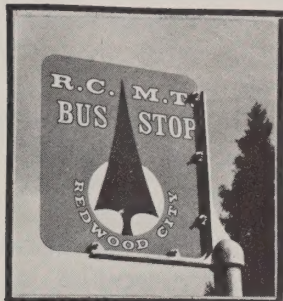






## RAPID TRANSIT

All mass transit schedules should be coordinated by timing and location . . . buses should arrive just before a train arrives at the train depot . . . an adequate feeder bus system joining at a rapid transit station improves the use of both travel facilities and decreases the need for parking facilities for private automobiles





District should be encouraged. Rising fuel costs may provide the most significant reason for combining or coordinating the systems.

- d. Doors on buses should be wide enough to allow easy ingress and egress maneuvering by passengers with a lot of packages. Air conditioning and a music system should be standard on all buses. The more comfort that can be associated with riding the bus, the more people will use it, because they are treated like people and not cargo.
- e. All mass transit schedules should be coordinated by timing and location. Buses from one city to another should meet at the transfer location at the same time to simplify the transfer process. Buses should arrive just before a train arrives at the train depot. An adequate feeder bus system terminating at a rapid rail facility would greatly improve the use of both facilities and decrease the amount of parking required.
- f. The bus system may be the best in the region, but if the people don't know it they won't use it. The advertising should mention fares, schedules, and amenities provided on the buses.
- g. At the present time there are no bus routes through Redwood Shores and inadequate service in the unincorporated portions of Redwood City. Redwood Shores has an upper middle-class population, and the unincorporated areas have a large lower-income population which is in need of public transportation as an alternative to private multiple-automobile ownership.

12. Provide for the expected increase in bicycle traffic.

- a. The most desirable form of bicycle lanes would be for them to be completely separated from automobile traffic and pedestrian traffic. This type of lane would be the safest but, unfortunately, the most expensive solution. As an interim measure bicycle lanes should be striped on existing traffic ways, and then, when bicycling becomes even more popular, separate lanes should be built.
- b. Many persons commute by bicycle from one city to another, and it is important that they are able to continue their trip without needlessly searching for bicycle routes in each city.
- c. The Zoning Ordinance could be amended to include bicycle parking as well as automobile parking. One of the major complaints of bicyclists is that they do not have a safe place to park their bicycles. Bicycle racks are usually added to a project as an afterthought and don't appear to



belong in the overall design. Bicycle parking should be provided in the City parking lots and at the Southern Pacific Railroad and Greyhound Bus Lines stations.

- d. Bicycle riders who violate the existing vehicle code should be cited. One of the largest single safety problems is that cyclists of all ages have an inclination to ignore traffic rules. Bicycles are covered under the same laws as motorized vehicles, and cyclists should be as responsible for their actions as motorists. Some cities have instituted a "Bicycle Court" that deals only with violations regarding bicycles. Special fines are levied, and parents of younger offenders are required to attend. As more use is made of bicycles, it will be increasingly important that all rules are obeyed to minimize the chances of an accident.
- e. Everywhere the cyclist goes he must compete with the automobile for space, which decreases the pleasure he might normally derive from riding. Pathways should be built in scenic areas where bicycle riders could ride leisurely and not worry about the automobile. The dikes surrounding Redwood Peninsula offer potential non-motorized bike paths. The land is flat which would allow all types of riders to use the dikes with little physical effort, and views are some of the best in Redwood City. For the more experienced and aggressive rider, there should be pathways in the hills area and even extending over Skyline Boulevard to the coast.

13. Allow for easier pedestrian movements throughout the City.

- a. The new lights on Marshall Street can be actuated by a pedestrian as easily as by an automobile. New signal systems should have actuators for pedestrians as well as for vehicles.
- b. The improvements on Broadway have given a major portion of the right-of-way back to the pedestrian. There will be large sidewalks with landscaping, and various activities will be allowed outside the shops. There are other streets in Redwood City that could be altered in much the same way. It is also possible to completely eliminate traffic on some streets and turn them into pedestrian malls. When there is no traffic, pedestrians enjoy relief from the conflict with the automobile, and noise is greatly reduced.

14. Provide access to the Port.

As development continues at the Port, it is extremely important to provide the access needed for trucks to and from the Bayshore Freeway and rail service other than along Chestnut Street. Harbor Boulevard would have to be widen-



ed, and the intersection with East Bayshore Road would have to be improved. Improved access for rail service would have to be provided along Bayshore Freeway to meet the rail line crossing at the Dumbarton Bridge.

15. Seek cooperation with San Mateo County in respect to the San Carlos Airport.

If Redwood City is kept abreast of the operating procedures and expansion plans, the City will know how to respond at any given time. Any possible expansion of the airport should be approached cautiously because of its potentially adverse impact on the environment. It is likely that more people would be subjected to increased noise and hazard if expansion were to occur and operations were increased.

#### D. STANDARDS

1. Streets having less than 500 vehicles per day should be considered for certain types of traffic control:
  - a. These streets could be completely blocked at one end.
  - b. They could be equipped with traffic "diverters" which would not allow through traffic by forcing automobiles to turn at certain intersections.
2. The standards of the Subdivision Ordinance should be amended to allow minimum street widths, where applicable, of 25 feet from curb to curb with no parking allowed.
3. Roadways (by roadway type) and capacities (total vehicles in both directions for 24 hours) should meet the following requirements:
  - a. Eight-lane freeway: 80,000-100,000.
  - b. Six-lane freeway: 60,000-75,000.
  - c. Four-lane freeway: 40,000-50,000.
  - d. Six-lane, divided arterial: 35,000-39,000.
  - e. Four-lane, divided arterial: 25,000-27,000.
  - f. Four-lane arterial: 17,000-22,000.
  - g. Four-lane business street: 14,000-17,000.
  - h. Two-lane collector: 9,000-12,500.



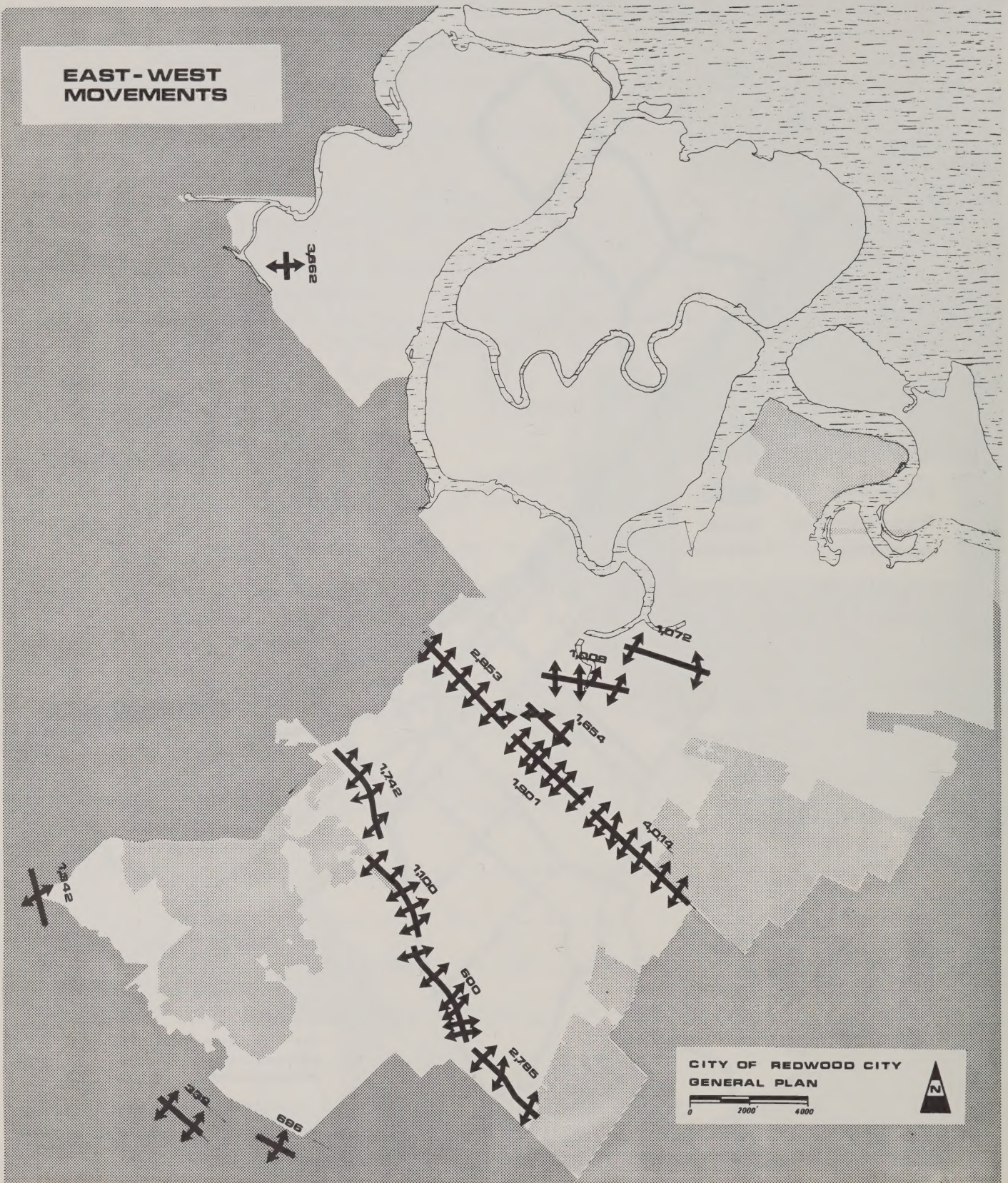


**MAJOR TRAFFIC ROADS**

**CIRCULATION  
ELEMENT**



# EAST - WEST MOVEMENTS



**AVERAGE HOURLY  
TRAFFIC VOLUME (2000)**

**CIRCULATION  
ELEMENT**



**NORTH-SOUTH  
MOVEMENTS**



**AVERAGE HOURLY  
TRAFFIC VOLUME (2000)**

**CIRCULATION  
ELEMENT**

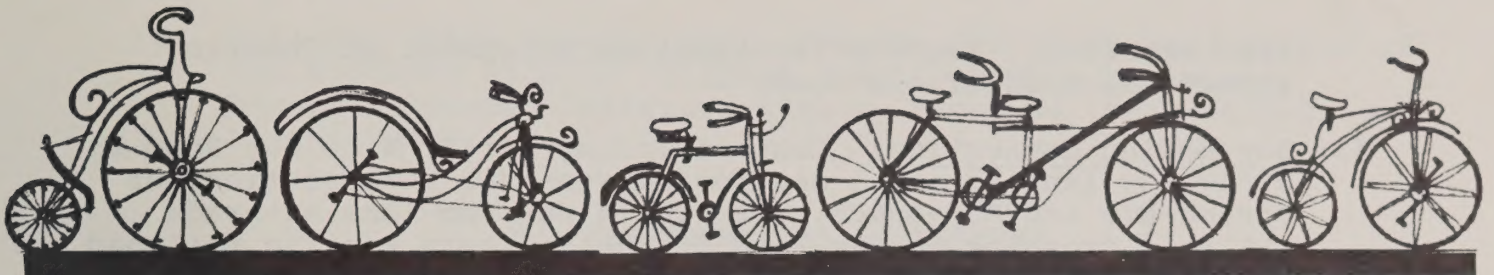


4. All bicycle lanes should be a minimum of five feet in width.
5. Bicycle lanes should be separated from vehicle traffic by a six-inch curb at the minimum.
6. The standards for bicycle parking for various uses are as follows:
  - a. Residential--multi-family: one space per two units.
  - b. Commercial: one space per 500 square feet of floor area.
  - c. Office: one space per two employees.
  - d. Industrial: one space per 15 employees.
  - e. Recreational: one space per five patrons.
7. A bicycle parking space should be two feet by five feet minimum with four-foot aisle widths.
8. All municipal parking lots should provide for bicycle parking at the ratio of one bicycle parking space per four automobile spaces.

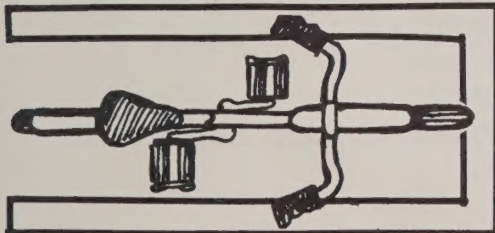
#### E. PROPOSALS

1. Signal Improvements for Alameda de las Pulgas: Eliminate four-way stop signs at intersections north of Jefferson Avenue.
2. Improvements for El Camino Real: Improve intersection channelization and signal timing for El Camino Real intersections north of Woodside Road.
3. Signal Improvement for Woodside Road: Modify signal timing at Woodside-Alameda intersection to provide more green time and better phasing for Woodside Road traffic.
4. Roosevelt-Lathrop and Cedar Connection: Provide a two-lane arterial connector between Roosevelt Avenue and Lathrop Street at Cedar Street across El Camino Real. Upgrade Cedar Street to a two-lane arterial between Lathrop Street and Main Street.
5. Industrial-Winslow-Theatre-Middlefield Connection: Upgrade Industrial Way between "A" Street and Whipple Avenue and Winslow Street between Whipple Avenue and Pennsylvania Avenue to a four-lane arterial by eliminating parking on both sides of streets during peak periods and by other traffic engineering improvements. Connect Winslow Street to Theatre Street with a new four-lane road section. Widen Theatre Street to a four-





5 FEET



PARKING SPACE

2 FEET

# PROPOSED BICYCLE PARKING STANDARDS

RESIDENTIAL  
(OVER FOUR UNITS)

  
(UNITS)

COMMERCIAL

One

500 SQ. FT.  
(FLOOR AREA)

OFFICE



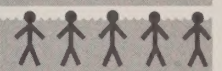
Space

  
(EMPLOYEES)

INDUSTRIAL

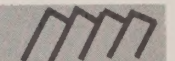
  
(EMPLOYEES)

RECREATIONAL

  
(PATRONS)

MUNICIPAL  
(PARKING LOTS)

Per

  
(PARKING SPACES)





lane arterial. Improve intersection alignment at Theatre Street and Middlefield Road.

6. Bay-Spring Connection: Connect Spring Street with Bay Road by a new two-lane arterial section between the intersections of Spring-Elm and Bay-Beech. Provide a new two-lane at-grade railroad crossing on Bay Road at the Southern Pacific railroad tracks, and improve the intersection alignment at Bay Road and Marsh Road. Upgrade the entire section of Bay Road between Spring Street and Marsh Road to a two-lane arterial with traffic engineering improvements.
7. Upgrade Whipple-Bayshore to Full Interchange: Upgrade the Whipple Avenue and Bayshore Freeway interchange to a full cloverleaf. This will help to eliminate some of the congestion on this section of roadway.
8. Zoning for Rapid Transit Terminal: Zone the future rapid transit terminal site to a Public Facilities District.
9. New Bus Route along Alameda: Initiate a bus route along Alameda de las Pulgas and Hudson Street.
10. New Bus Route in Unincorporated Area: Initiate a bus route on Middlefield Road to Fifth Avenue, then to El Camino Real, then down Main Street, and then to the terminal.
11. New Bus Route to Redwood Shores: Initiate a bus route to Redwood Shores along Bayshore Freeway, or Industrial Road, and Peninsula Parkway.
12. Post Bus Schedules and Routes: Post all bus schedules and routes at the bus terminal, at all bus stops (where benches are located), and along the bus routes with one at each block.
13. Advertise Mass Transit Facilities: Initiate an advertising campaign on a local or region-wide basis, explaining the benefits of riding on mass transit facilities.
14. Consider Adopting a Bicycle Plan: Investigate the adoption of a Bicycle Plan.
15. Amend Zoning Ordinance for Bicycle Parking: Amend the Redwood City Zoning Ordinance to provide bicycle parking for all new development as specified in the standards section.
16. Improve Pedestrian Access at Traffic Lights: Equip all traffic signals with pedestrian walk buttons which will give equal importance to the pedestrian.
17. Improve Woodside-Bayshore Interchange: Widen Harbor Boulevard and improve the Woodside Road interchange.



18. Railroad Grade Separations: Provide for grade separations of the Southern Pacific railroad tracks at Whipple Avenue, Brewster Avenue, Jefferson Avenue, Broadway, Main Street, and Fifth Avenue.

#### F. ENVIRONMENTAL ASSESSMENT

1. Proposal E-4, Roosevelt-Lathrop and Cedar Connection: This project is designed to enhance the access to the Central Business District and to provide improved access to the Redwood Shores area from the south-central neighborhoods of the City. This project would also relieve congestion on El Camino Real and Jefferson Avenue.
- a. The environmental impact of the proposed action in the short range will be:
- i. Potential inducement of additional traffic on Roosevelt Avenue, a narrow arterial.
  - ii. Bisection of accessory off-street parking for a restaurant.
  - iii. Introduction of increased traffic on Cedar Street, presently a quiet street.
  - iv. Complication of traffic patterns on the southerly end of Main Street as it exists today.
- b. The long-range environmental impacts upon the community will, however, be positive, because:
- i. Improved traffic circulation patterns will enhance the accessibility of south-central neighborhoods to other areas of the City north of El Camino Real.
  - ii. The improvement will expedite improvements in obsolete land patterns near Cedar Street and Main Street.
  - iii. El Camino Real and Jefferson Avenue will be relieved of unnecessary traffic movements.
- c. Any adverse environmental effects which cannot be avoided if the proposal is implemented:
- i. This project will interfere with the operation of businesses directly in the path of the proposed street improvement.



# ENVIRONMENTAL ASSESSMENT MATRIX

PROPOSAL  
DESIGNATION

Environmental  
Impact

Unavoidable  
Adverse  
Effects

Mitigation  
Measures

Alternatives

Relationship  
Between  
Short-Term  
& Long-Term  
Effects

Irreversible  
Environmental  
Changes

Growth  
Inducing  
Impact

|      |   |   |   |   |   |   |   |
|------|---|---|---|---|---|---|---|
| E-1  | ○ | - | - | N | - | - | - |
| E-2  | ○ | - | - | N | - | - | - |
| E-3  | ○ | - | - | N | - | - | - |
| E-4  | ● | ● | ● | ● | ● | ● | ● |
| E-5  | ○ | - | - | N | - | - | - |
| E-6  | ○ | - | - | N | - | - | - |
| E-7  | ○ | - | - | N | - | - | - |
| E-8  | ○ | - | - | N | - | - | - |
| E-9  | ○ | - | - | N | - | - | - |
| E-10 | ○ | - | - | N | - | - | - |
| E-11 | ○ | - | - | N | - | - | - |
| E-12 | ○ | - | - | N | - | - | - |
| E-13 | ○ | - | - | N | - | - | - |
| E-14 | ○ | - | - | N | - | - | - |
| E-15 | ○ | - | - | N | - | - | - |
| E-16 | ○ | - | - | N | - | - | - |
| E-17 | ○ | - | - | N | - | - | - |
| E-18 | ● | ● | ● | ● | ● | ● | ● |

○ No adverse environmental impact

● Possible significant environmental impact--see further environmental assessment in the text

N "NO ACTION" is an alternative to the proposal

- Not applicable



- ii. Adverse effects will occur only during the construction period.
- d. Mitigation measures proposed to minimize the impact.

To minimize impact during construction, the facility should be built in as short a time as possible.
- e. Alternatives to the proposed action:
  - i. No action.
  - ii. Provide an alternate route to accomplish the same task.
- f. The relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity:

This addition would allow easier and safer access across El Camino Real from both sides of the City.
- g. Any irreversible environmental changes which would be involved in the proposed action should it be implemented:

None.
- h. The growth-inducing impact of the proposed action:

None.

2. Proposal E-18, Southern Pacific Grade Separations: This proposal would provide for grade separations of the Southern Pacific railroad tracks at Whipple Avenue, Brewster Avenue, Jefferson Avenue, Broadway, Main Street, and Fifth Avenue. The environmental impact of the proposed action will be:

- a. Major disruption to traffic during construction.
- b. Loss of property around each grade separation.
- c. Any adverse environmental effects which cannot be avoided if the proposals are implemented:

A loss of property adjacent to the grade separation because of the extra space required and the loss of access.

- d. Mitigation measures proposed to minimize the impact:

Construct the improvements one intersection at a time to be less disruptive.



e. Alternatives to the proposed action:

i. No action.

ii. Eliminate the Southern Pacific railroad tracks.

f. The relationship between local and short-term uses of man's environment and the maintenance and enhancement of long-term productivity.

i. These improvements will provide better connection for the two halves of Redwood City and eliminate the problems of traffic backing up during rush hours.

ii. The long-term effect will be positive.

g. Any irreversible environmental changes which would be involved in the proposed action should it be implemented:

None.

h. The growth-inducing impact of the proposed action:

None.

#### G. IMPLEMENTATION

The following implementation schedule should be used as a guideline for the Five-Year Capital Improvement Program which the City produces each year. Those projects with the most importance should be done first. In the event there is a chance for additional funding from outside sources, certain projects may be accelerated on the schedule.



**CIRCULATION ELEMENT  
PROPOSALS**

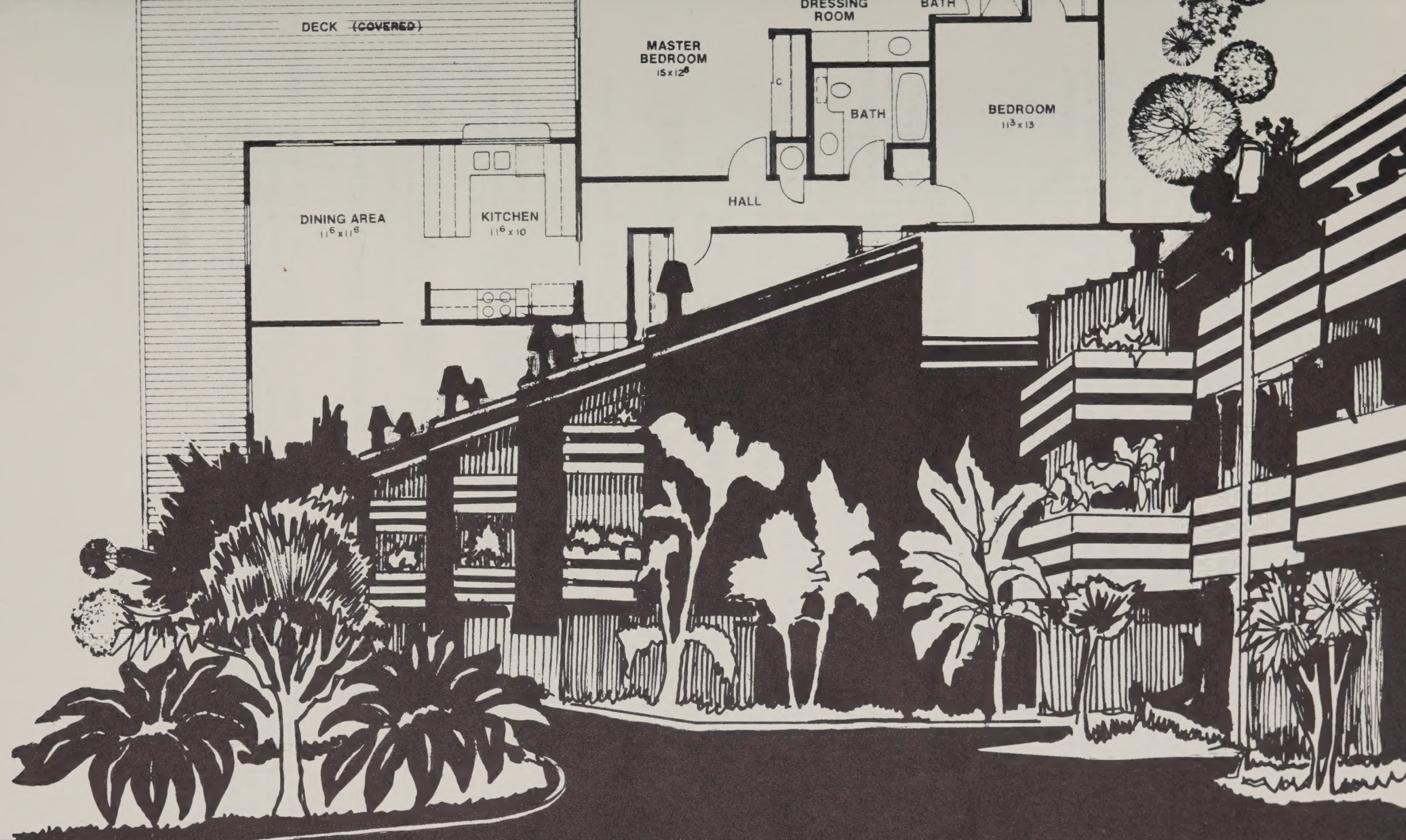
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|                                                      |   |   |   |   |  |
|------------------------------------------------------|---|---|---|---|--|
| 1. Signal Improvements for Alameda de las Pulgas     |   | ● |   |   |  |
| 2. Improvements for El Camino Real                   | ● |   |   |   |  |
| 3. Signal Improvement for Woodside Road              | ● |   |   |   |  |
| 4. Roosevelt-Lathrop & Cedar Connection              |   |   | ● |   |  |
| 5. Industrial-Winslow-Theatre-Middlefield Connection | ● |   |   |   |  |
| 6. Bay-Spring Connection                             |   | ● |   |   |  |
| 7. Upgrade Whipple-Bayshore to Full Interchange      |   | ● |   |   |  |
| 8. Zoning for Rapid Transit Terminal                 | ● |   |   |   |  |
| 9. New Bus Route Along Alameda                       | ● |   |   |   |  |
| 10. New Bus Route in Unincorporated Area             | ● |   |   |   |  |
| 11. New Bus Route to Redwood Shores                  | ● |   |   |   |  |
| 12. Post Bus Schedules and routes                    | ● |   |   |   |  |
| 13. Advertise Mass Transit Facilities                |   | ● |   |   |  |
| 14. Consider Adopting a Bicycle Plan                 | ● |   |   |   |  |
| 15. Amend Zoning Ordinance for Bicycle Parking       | ● |   |   |   |  |
| 16. Improve Pedestrian Access at Traffic Lights      |   | ● | ● |   |  |
| 17. Improve Woodside-Bayshore Interchange            |   | ● |   |   |  |
| 18. Railroad Grade Separations                       |   |   |   | ● |  |









# HOUSING

# 3





## A. PURPOSE

The HOUSING ELEMENT of the General Plan is designed to promote and insure: (1) the provision of adequate housing for all persons; (2) the provision of housing selection by location, type, price and tenure; and (3) an open and free choice of housing for all citizens, both present and future. Adoption of the goals, principles, and proposals of the Housing Element can provide a framework for municipal decisions relating to housing and community development, and can determine the effect of these decisions on the City's housing stock.

## B. EXISTING CONDITIONS

The existing conditions of Redwood City's housing stock are covered adequately in a report prepared by the Redwood City Planning Department entitled "Housing Redwood City, California, June 1972." In addition to these existing conditions, obstacles preventing attainment of adequate housing for all of Redwood City's residents include:

1. San Mateo County's very high land values.
2. High construction costs.
3. High interest rates and lack of mortgage funds.
4. Inadequate public funds for housing subsidies and ambiguity regarding existing government housing programs.
5. Lack of adequate commitment at the Local, Regional, State, and Federal levels to solving problems created by population growth and distribution.
6. Requirements of zoning, building, and health codes as minimum development and safety standards making the reduction of housing costs difficult.
7. Lack of financial incentives which would encourage upgrading of existing housing stock.
8. Existing State-mandated assessment practices discouraging the upgrading of present housing stock.
9. Failure of some communities to bear their share of the responsibility for low and moderate income housing and for special housing requirements of the aged and handicapped placing an unfairly large share of the responsibility on Redwood City.
10. Discrimination in our society on the basis of race and socioeconomic level.



11. Failure by some Local, State, and Federal agencies to enforce civil rights legislation.
12. Insufficient attention to the development of maintenance, training, and incentive programs for the education of owners and tenants.

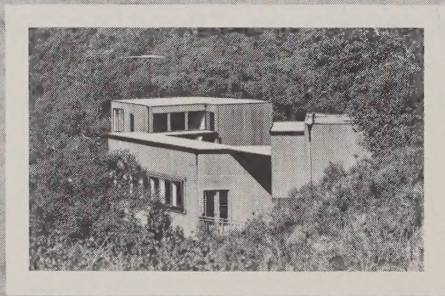
### C. GOALS

1. Supply: A sufficient supply of housing to satisfy the need for a safe and sanitary dwelling of adequate size and acceptable cost for every City resident, both present and future.
  - a. Maintenance and conservation of existing housing stock by rehabilitating, renovating, and refurbishing those structures which will allow such changes.
  - b. Seeking funds to subsidize the building of low and moderate income housing which is fiscally and environmentally viable.
  - c. Development of sufficient housing with features to meet the needs of Redwood City's handicapped, aging, and others with special physical requirements.
  - d. Development of housing which promotes energy conservation and less dependence upon the automobile.
  - e. Development of housing which makes best use of available acreage so that the requirements of both housing and open space can be met.
2. Distribution: A sufficient distribution of new, replacement, and rehabilitated housing by type, size, and cost so that each household regardless of race, cultural origin, or economic status is provided a reasonable choice of locations within the City.
3. Municipal Services: Provide municipal services to maintain residential areas with equality of municipal services in all neighborhoods.

### D. STANDARDS

Standards for the implementation of Redwood City's housing goals are embodied within the text of the report on "Housing Redwood City, California, June 1972."











## E. PROPOSALS

The Housing Element prescribes the course for providing decent, safe, and sanitary housing conditions for all of Redwood City's residents, both present and future. The proposals listed below will help provide the direction needed in order to achieve the City's housing goals.

1. The City should emphasize its official position urging Federal and State governments to give high priority to the housing needs of all. Its policy statement addresses the need for substantial revision of those tax, revenue, and assessment practices which discourage or impede new housing construction and the rehabilitation of existing housing units; the need to adopt policies which will make substantial funds available to private lending institutions for residential mortgages in the private sector; and the need for substantial State and Federal funds for subsidizing low and moderate income housing including housing for the elderly, the handicapped, and the developmentally disabled. The City's position should be aggressively advocated before all appropriate agencies including, but not limited to, the State Legislature, the Office of the Governor, the U.S. Congress, the White House, and the California and National Leagues of Cities.
2. As State or Federal funds or private grants become available for the purpose, the City should undertake a study of deteriorated housing in Redwood City to identify housing which is uninhabitable or only marginally habitable. Such housing should be condemned and razed or rehabilitated, whichever is more practical. All occupants of housing to be condemned or rehabilitated under this part should be furnished relocation housing and relocation expenses prior to commencement of razing or rehabilitating their present dwellings. Funds for programs in this paragraph should come from the State or Federal sources or from private grants.
3. The City should pursue all available sources of low interest loans and grants for funding housing conservation and rehabilitation. The City should allocate such funds for the purpose of providing loan assistance where required. Such funding may be accomplished in part by setting up a revolving loan fund for homeowners and owners of low income rental properties.
4. The City and County should coordinate their Housing Elements.
5. The City should pursue the concept of a centralized, County-wide relocation agency.
6. The Housing Concerns Committee should continue as a City function.

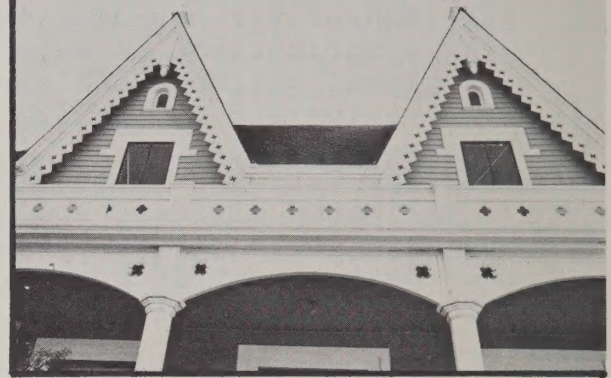


7. Because Redwood City is sensitive to the needs of all its citizens, it is recommended that the Housing Concerns Committee develop a plan to foster unique and pertinent solutions to the needs of the handicapped, elderly, and others who require special consideration; and it is further recommended that representatives of such groups be included on the Committee, or serve as technical advisors to the Committee, as needed.
8. The City should sponsor a program to bring together representatives of banks, savings and loan associations, and other lending institutions to establish techniques for increasing availability of money for the conservation and rehabilitation of housing.
9. The City should encourage the private sector to establish a non-profit corporation to provide a conduit for tax deductible contributions of materials, tools, and professional advice by local builders and suppliers in conjunction with the conservation and rehabilitation of housing.
10. The City should make available to all developers, as well as limited dividend and non-profit sponsors, information of all available governmental programs which would assist them in the development of projects for low and moderate income families and individuals.
11. The City should continue to make available the expert advice and guidance of Building Department officials to homeowners involved in "do-it-yourself" rehabilitation and maintenance. Community organizations should be encouraged to institute programs to provide skills and labor to elderly and other needy homeowners for rehabilitation and maintenance.
12. The City of Redwood City should give high priority to the development of financially feasible and innovative housing units for senior citizens. The City should assure that these units would provide amenities, such as gardens and patios.
13. The City should establish a policy of land use planning and corresponding zoning ordinance regulations to encourage variety and mix in residential development so as to provide a reasonable choice of locations within the City for persons at all income levels.
14. The City should grant zoning and design incentives to those developers who include provision of subsidized low and moderate income units in their developments.
15. Redwood City should further explore the Palo Alto plan for land banking and other reasonable plans for low and moderate income housing.

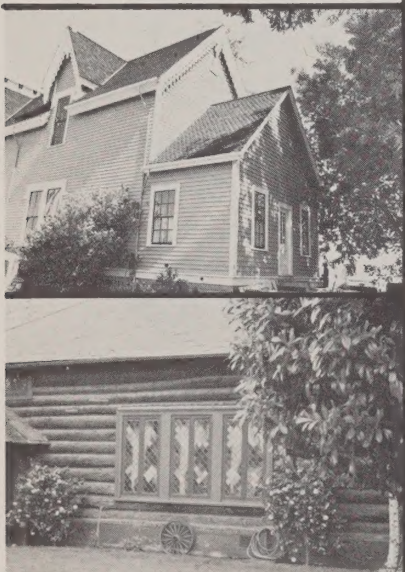




**THE CITY SHOULD GIVE HIGH PRIORITY TO THE DEVELOPMENT OF FINANCIALLY FEASIBLE AND INNOVATIVE HOUSING UNITS FOR SENIOR CITIZENS.**

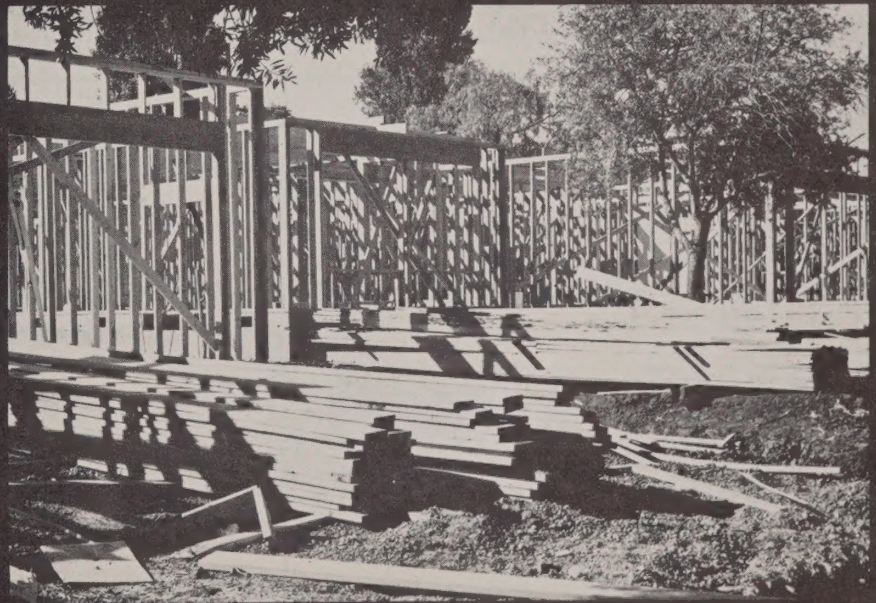
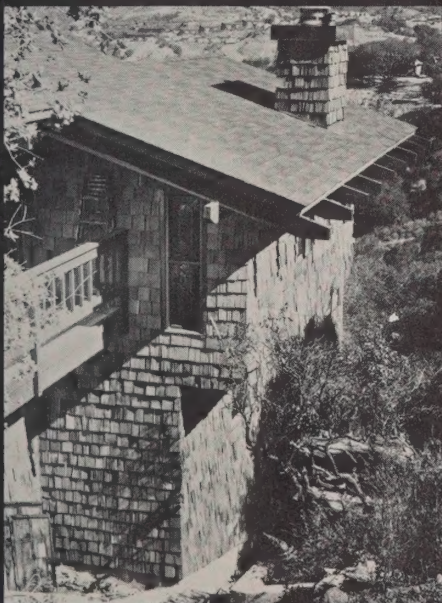


**THE CITY SHOULD CONTINUE ITS ADVICE AND GUIDANCE ... TO HOMEOWNERS INVOLVED IN 'DO-IT-YOURSELF' REHABILITATION AND MAINTENANCE.**





**A SUFFICIENT DISTRIBUTION OF HOUSING  
SHOULD BE PROVIDED SO THAT EACH HOUSEHOLD  
HAS A REASONABLE CHOICE OF LOCATION WITHIN  
THE CITY.**





16. The City should modify the appropriate local codes to enhance energy conservation in both new and old housing.
17. The City should explore planning and regulatory techniques which aid in reducing reliance on high energy consuming activities.
18. Redwood City should seek assistance from those neighboring cities whose policies have excluded low and moderate income residents to help provide housing in Redwood City for those residents so excluded.

#### F. ENVIRONMENTAL ASSESSMENT

Implementation of the Housing Element will serve to conserve and improve the quality of the housing stock of Redwood City as well as expand housing opportunities for all of the City's residents, both present and future, by promoting the provision of adequate housing for all persons, expanding the choice of housing selection, and allowing each citizen an open and free choice of housing type.

The implementation of the Housing Element will enhance the range of benefits available in the local environmental setting in general, though specific projects will need to be evaluated as they are proposed. The only alternative to the proposed action would be "no action," in which case much of the City's housing stock would continue to deteriorate, and an increasing number of the City's residents, both present and future, would find the acquisition of decent housing beyond their means.

Adoption of proposal E-12 may serve to induce a small amount of growth since seniors who had been living in single-family dwellings would move to higher density projects, thus freeing single-family structures for use by larger families.

#### G. IMPLEMENTATION

In order to best facilitate the effectiveness of the proposals outlined in Section E., they should be implemented within the parameters of the time frame indicated on the following page.



**HOUSING ELEMENT  
PROPOSALS**

1975- 1980- 1985- 1990- 1995-  
80 85 90 95 2000

|                                                                |   |   |   |   |   |
|----------------------------------------------------------------|---|---|---|---|---|
| 1. Urge Federal and State Governments to Give Housing Priority | ● | ● | ● | ● | ● |
| 2. Study Deteriorated Housing                                  | ● |   |   |   |   |
| 3. Pursue Low Interest Loans                                   | ● | ● | ● | ● | ● |
| 4. Coordinate with County                                      | ● | ● | ● | ● | ● |
| 5. Concept of County Relocation Agency                         |   |   | ● | ● | ● |
| 6. Make Housing Concerns Committee an On-going Function        | ● | ● | ● | ● | ● |
| 7. Develop Plan to Foster Unique Solutions                     |   |   | ● | ● | ● |
| 8. Bring Together Lending Representatives                      |   |   | ● | ● | ● |
| 9. Encourage Establishment of Non-Profit Housing Corporation   |   |   | ● | ● | ● |
| 10. Make Housing Information Available                         |   | ● | ● | ● | ● |
| 11. Make Rehabilitation Advice Available                       | ● | ● | ● | ● | ● |
| 12. Innovative Senior Housing                                  |   |   | ● | ● | ● |
| 13. Encourage Variety and Mix in Residential Developments      | ● | ● | ● | ● | ● |
| 14. Grant Incentives                                           | ● | ● | ● | ● | ● |
| 15. Explore Palo Alto Plan                                     | ● | ● | ● | ● | ● |
| 16. Modify Appropriate Local Codes                             | ● |   |   |   |   |
| 17. Reduce Energy Consumption                                  | ● | ● | ● | ● | ● |
| 18. Engage Neighboring Cities in Housing Policies              | ● | ● | ● | ● | ● |









**OPEN SPACE**

**4**





## A. PURPOSE

The OPEN SPACE ELEMENT of the General Plan prescribes the location and extent of lands required to preserve and conserve natural resources; to direct and limit directions of growth for the physical, social, and economic well-being of the citizenry; to provide for recreation and scenic value; and to protect wildlife habitats. As pressures for urbanization increase, open space should be viewed as a non-renewable, finite resource requiring comprehensive planning in order to maintain the delicate balance between man and nature, developed and undeveloped land.

The term "open space" as used in this element, is defined as any area of land or water essentially unimproved and devoted to any one of the following uses and functional subcategories:

### Preservation of Natural Resources

Plant life  
Animal life  
Wildlife habitat  
Ecological/scientific  
Rivers/streams  
Bays/estuaries  
Coastal beaches  
Lakeshores  
Banks of streams  
Watersheds

### Public Health and Safety

Earthquake faults  
Unstable soils  
Flood plains  
Watersheds  
High fire risk areas  
Water quality  
Air quality  
Airport zone

### Outdoor Recreation

Scenic  
Cultural  
Historic  
Parks  
Lakeshore access  
Beach access  
River/stream access  
Links between major recreation  
and open space reservations  
Utility easements  
Streambanks  
Trails  
Scenic highways

### Managed Production of Resources

Agriculture  
Bays/estuaries  
Marshes  
Rivers/streams  
Major mineral deposits

Open space serves a variety of functions:

1. It helps to prevent the premature and unnecessary conversion of land to urban use.
2. It helps to discourage non-contiguous development patterns which unnecessarily increase the costs of community services to community residents.
3. It helps supply land for recreational use.



4. It helps to conserve natural resources, wildlife habitats, areas with scenic value, and historical and archaeological sites.
5. It helps to protect and enhance human life by preserving watershed lands, aiding in flood control, protecting agricultural resources, and limiting development in areas susceptible to fire, earthquake, or soil stability hazards.

## B. EXISTING CONDITIONS

The predominant pattern of Redwood City's open space today is found in three zones, beginning with the Bay in the east and stretching to the foothills in the west. (See Open Space Zones Map.) The character of open space depicted by these three zones varies according to the different levels of development exhibited by each.

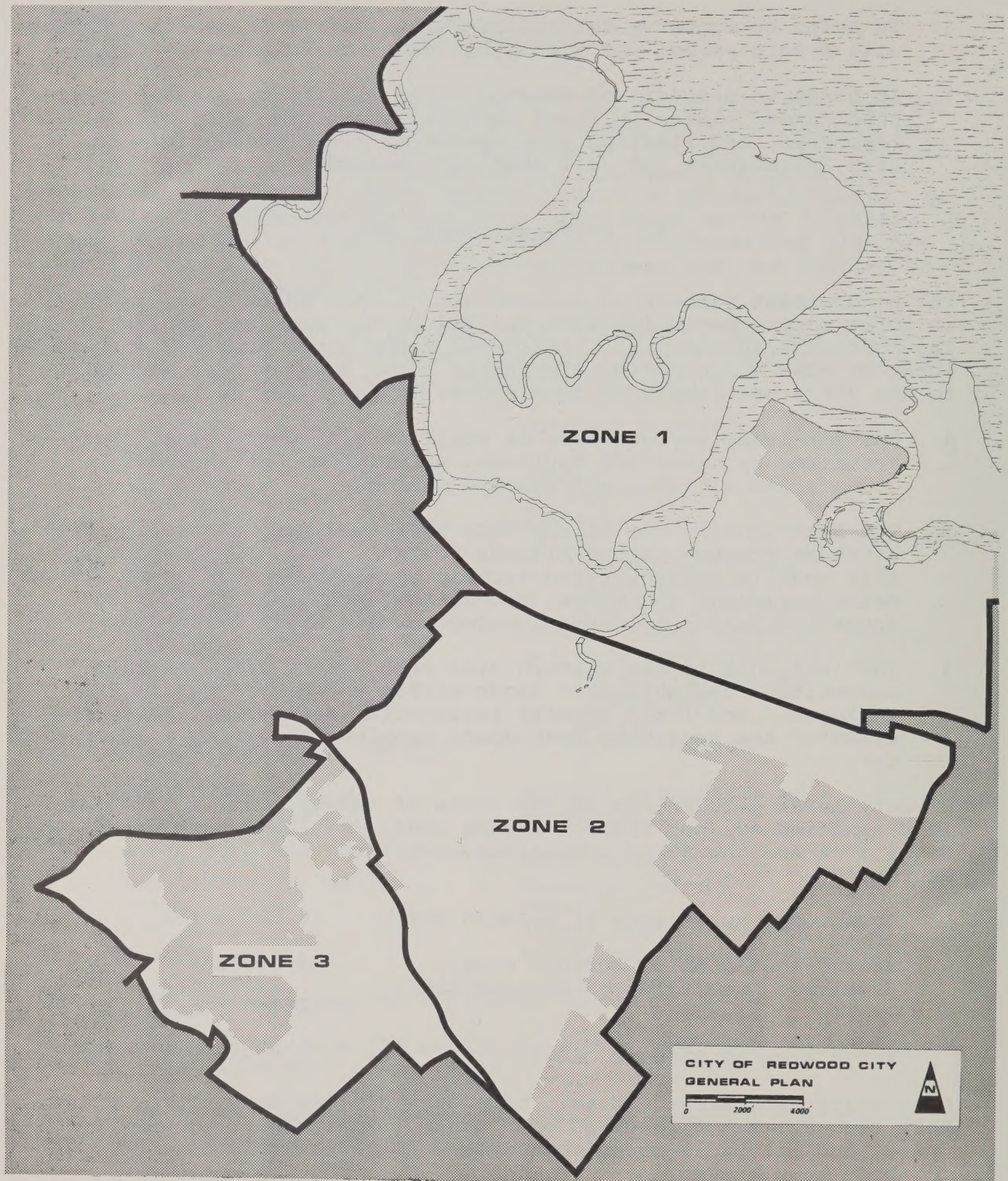
1. The low-lying bayland zone is still largely open space, characterized by diked off baylands, water areas, marsh lands, streams and sloughs, and managed wetlands.
2. The next zone is the intensively urbanized area stretching from Bayshore Freeway to the Alameda de las Pulgas. Open space in this zone is characterized largely by man-made open areas around major buildings and homes, recreation areas, and open space areas incidental to natural water courses still preserved.
3. The last zone is the western hill area, where steep terrain, undeveloped and watershed lands within the City's Sphere of Influence, and lower density residential development have contributed the remaining open space supply to the City's inventory.

Seventy-seven percent, or 16,667 acres of Redwood City's total area is classified as open space. Vacant land, developed park sites, and water area are the three components comprising the open space system.

|                                        |                         |
|----------------------------------------|-------------------------|
| Total open space area of Redwood City: | 16,667 acres            |
| Vacant land area of Redwood City:      | 6,683 acres             |
| Developed park sites of Redwood City:  | 112 acres               |
|                                        | <hr/> 6,795 acres (41%) |
| Water area of Redwood City:            | 9,872 acres (59%)       |

Open space land acreage totals have been divided into three ownership categories: City-owned open space, other publicly-owned open space, and privately-owned open space. Water area is not included in these tabulations.





## OPEN SPACE ZONES

OPEN SPACE  
ELEMENT



The City currently owns 168 acres, or two percent of the existing open space land, distributed among the following categories:

|                                   |                |
|-----------------------------------|----------------|
| Developed neighborhood parks:     | 17 acres (10%) |
| Community parks:                  | 95 acres (57%) |
| Other City-owned open space land: | 56 acres (33%) |

Table I provides an inventory of City-owned open space land. Refer also to the City-owned Open Space Map on the succeeding page.

Other public agencies own a total of 1,343 acres, or about 20 percent of the existing open space land. A large portion of this total is State-owned, though also included are County-owned lands, the Hetch-Hetchy right-of-way, and three vacant school sites.

|                                       |                   |
|---------------------------------------|-------------------|
| State-owned open space land:          | 1,150 acres (85%) |
| County-owned open space land:         | 20 acres ( 2%)    |
| San Francisco Water Department lands: | 45 acres ( 3%)    |
| Vacant school lands:                  | 52 acres ( 4%)    |

Though developed school sites are not classified as vacant lands, they contribute significantly to the open space inventory since a large portion of each site is devoted to playground/playfield facilities. Elementary school playfields are credited toward the neighborhood park inventory and high school playfields toward the community park inventory.

|                                          |                |
|------------------------------------------|----------------|
| Elementary school open space equivalent: | 56 acres ( 4%) |
| High school open space equivalent:       | 20 acres ( 2%) |

Table II and the accompanying map provide a specific accounting of these other publicly-owned open space lands.

Private open space may consist of landscaping around residential or commercial developments or large tracts of yet undeveloped lands. Private open space performs a variety of functions by supplying light and ventilation to surrounding buildings, preventing the spread of fire, and providing privacy for residents and beauty for the neighborhood.

Parcels in private ownership constitute 5,284 acres or 78% of the existing open space land in Redwood City. Thirty-seven of these definable areas are larger than one acre, and, of these 37, 23 are located in the Redwood Peninsula/Bair Island/Port area.

|                                   |                   |
|-----------------------------------|-------------------|
| Privately-owned open space land   |                   |
| in parcels of more than one acre: | 4,760 acres (90%) |
| Privately-owned open space land   |                   |
| in parcels of less than one acre: | 524 acres (10%)   |

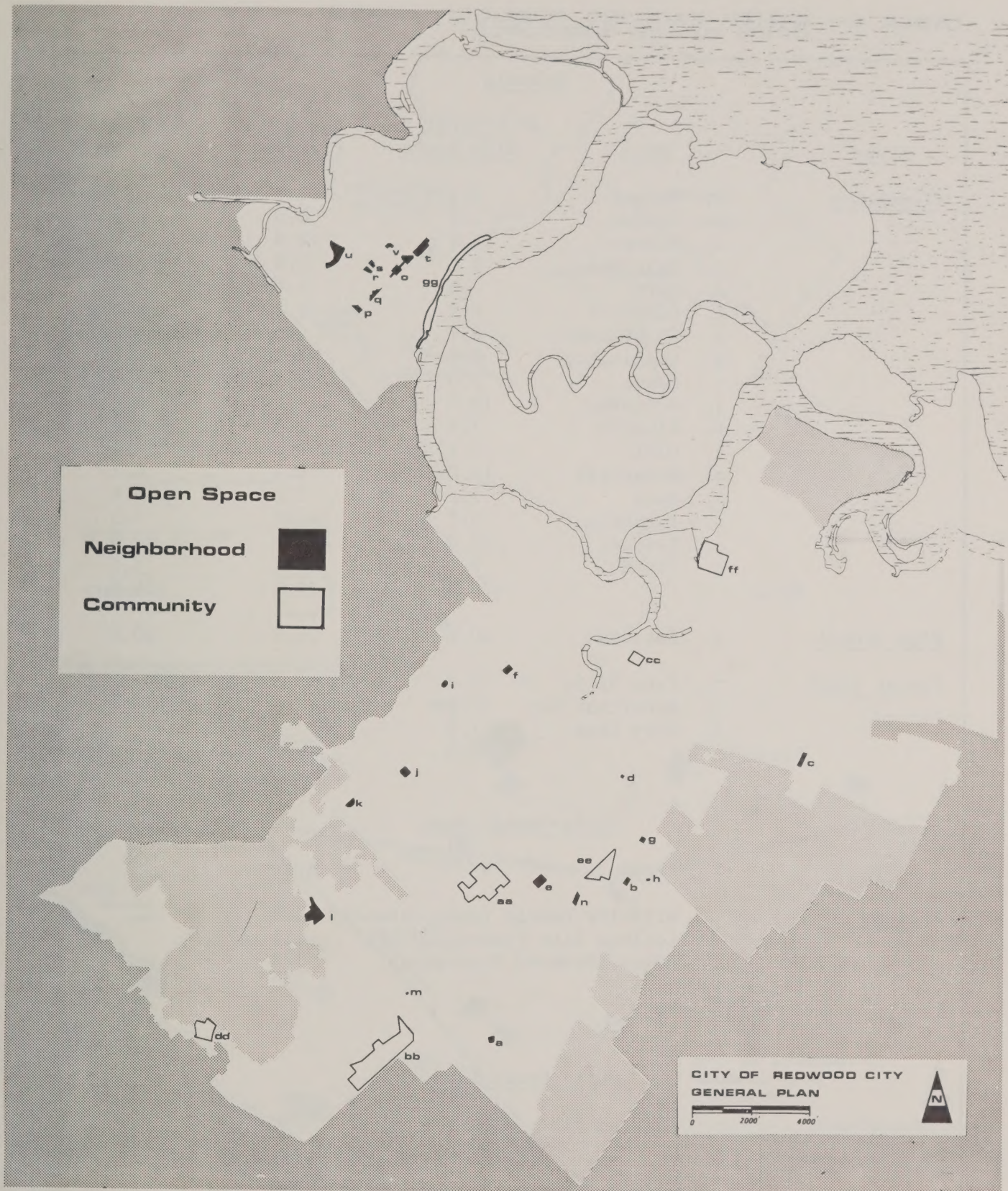
Table III and the accompanying map provide an accounting of privately-owned parcels larger than one acre in size.



**TABLE 1: EXISTING CITY-OWNED OPEN SPACE RESOURCE**

| <u>Type</u>                                | <u>Name</u>                              | <u>Acres</u> |            |
|--------------------------------------------|------------------------------------------|--------------|------------|
| <u>Neighborhood Parks</u><br>(Developed)   | a. Maddux                                | 0.6          |            |
|                                            | b. Fleishman                             | 0.6          |            |
|                                            | c. Spinas                                | 1.5          |            |
|                                            | d. Chestnut                              | 0.3          |            |
|                                            | e. Hawes                                 | 3.1          |            |
|                                            | f. Mezes                                 | 1.0          |            |
|                                            | g. Le Blanc                              | 0.1          |            |
|                                            | h. Linden                                | 0.2          |            |
|                                            | i. Wellesley Crescent                    | 0.7          |            |
|                                            | j. Stafford                              | 1.6          |            |
|                                            | k. Dove Beeger                           | 1.0          |            |
|                                            | m. Westwood                              | 0.5          |            |
|                                            | o. Marlin 1                              | 4.5          |            |
|                                            | s. Vista 1                               | 0.6          |            |
|                                            | v. Vista 2                               | 0.7          |            |
|                                            |                                          |              | Total 17.0 |
| <u>Neighborhood Parks</u><br>(Undeveloped) | 1. Canyon                                | 6.9          |            |
|                                            | n. Palm                                  | 1.0          |            |
|                                            | p. Dolphin 1                             | 1.1          |            |
|                                            | q. Dolphin 2                             | 1.1          |            |
|                                            | r. Dolphin 3                             | 0.8          |            |
|                                            | t. Marlin 2                              | 4.0          |            |
|                                            | u. Waterfront                            | 3.8          |            |
|                                            | (various locations) Potential park sites | 4.3          |            |
|                                            |                                          |              | Total 23.0 |
| <u>Community Parks</u>                     | aa. Red Morton                           | 34.0         |            |
|                                            | bb. Stulsaft                             | 41.0         |            |
|                                            | ff. Municipal Marina                     | 20.0         |            |
|                                            |                                          |              | Total 95.0 |
| <u>City-wide Open Space</u>                | cc. Model Airplane Field                 | 1.5          |            |
|                                            | dd. Easter Bowl                          | 9.0          |            |
|                                            | ee. Union Cemetery                       | 6.5          |            |
|                                            | (various locations) Parkways and Circles | 8.0          |            |
|                                            |                                          |              | Total 25.0 |
| <u>Regional Open Space</u>                 | gg. City-owned Dike Land                 | 8.0          |            |
|                                            |                                          |              | Total 8.0  |





**CITY - OWNED  
OPEN SPACE**

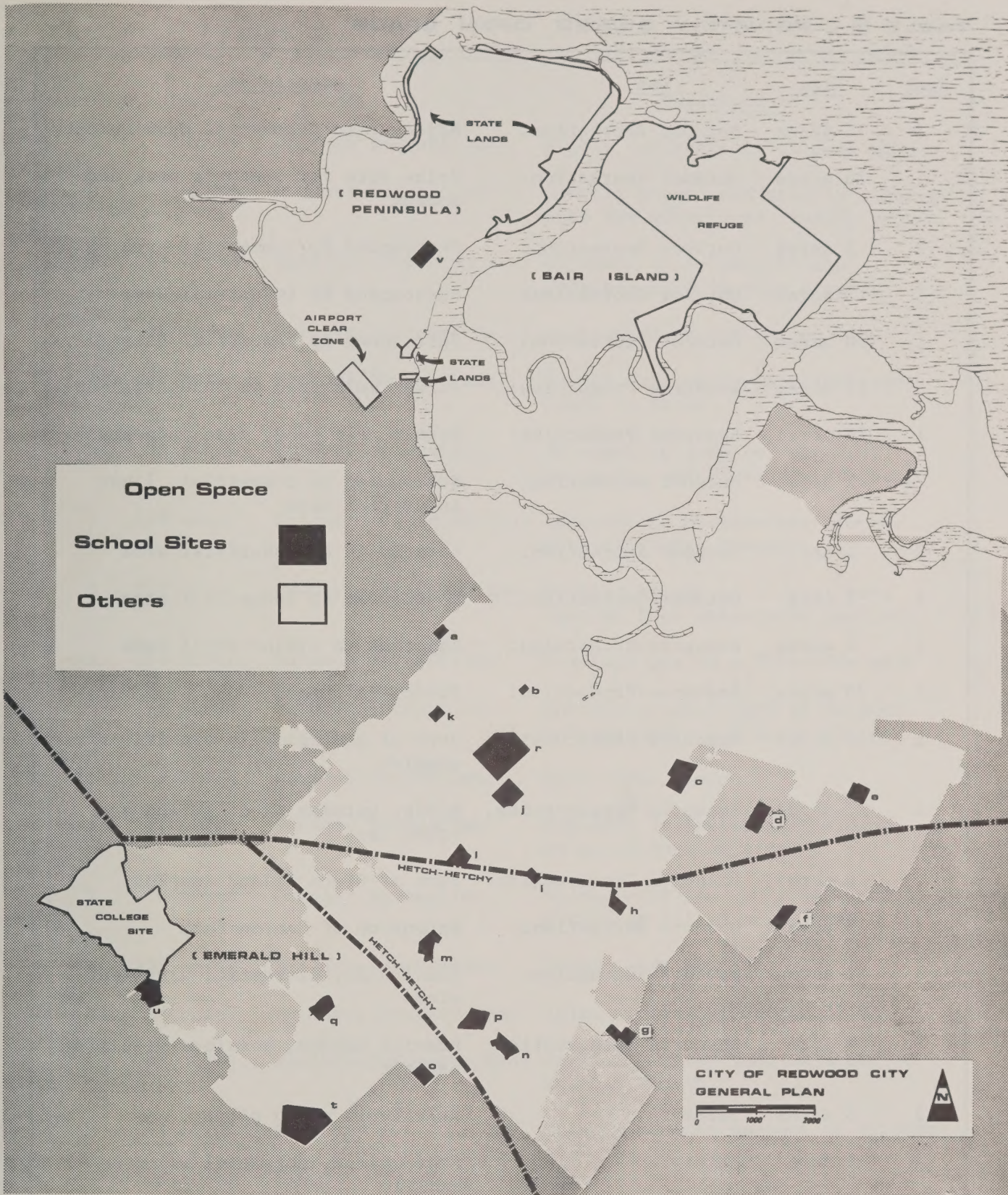
**OPEN SPACE  
ELEMENT**



**TABLE II : OTHER EXISTING PUBLICLY-OWNED  
OPEN SPACE RESOURCE**

| <u>Schools</u>                                    |                               |                             |                                 |                                  |
|---------------------------------------------------|-------------------------------|-----------------------------|---------------------------------|----------------------------------|
| <u>Type</u>                                       | <u>Name</u>                   | <u>Total<br/>Site Acres</u> | <u>Net Acres<br/>Playground</u> | <u>Open Space<br/>Equivalent</u> |
| <u>Elementary</u>                                 | a. Edison                     | 3.5                         | 1.5                             | 1.5                              |
|                                                   | b. Monroe                     | 1.5                         | 0.5                             | 0.5                              |
|                                                   | c. Hoover                     | 17.6                        | 12.8                            | 8.0                              |
|                                                   | d. Fair Oaks                  | 9.0                         | 6.0                             | (uninc.)                         |
|                                                   | e. Taft                       | 7.5                         | 5.4                             | 5.4                              |
|                                                   | f. Garfield                   | 8.9                         | 6.2                             | (uninc.)                         |
|                                                   | g. Selby Lane                 | 9.7                         | 4.5                             | (uninc.)                         |
|                                                   | h. Washington                 | 4.8                         | 3.6                             | 3.6                              |
|                                                   | i. Hawes                      | 3.0                         | 1.5                             | 1.5                              |
|                                                   | j. McKinley                   | 10.0                        | 4.6                             | 4.6                              |
|                                                   | k. Lincoln                    | 2.7                         | 1.5                             | 1.5                              |
|                                                   | l. Gill                       | 7.1                         | 4.1                             | 4.1                              |
|                                                   | m. Roosevelt                  | 10.0                        | 4.1                             | 4.1                              |
|                                                   | n. Ford                       | 7.5                         | 3.6                             | 3.6                              |
|                                                   | o. Franklin                   | 6.2                         | 5.0                             | 3.3                              |
|                                                   | p. Kennedy                    | 12.0                        | 7.5                             | 7.5                              |
|                                                   | q. Cloud                      | 9.0                         | 6.8                             | 6.8                              |
|                                                   | Total                         | 130.0                       | 79.2                            | 56.0                             |
| <u>High School</u>                                | r. Sequoia                    | 40.0                        | 20.0                            | 20.0                             |
| <u>Vacant Sites</u>                               | t. Farm Hills                 | 35.0                        |                                 |                                  |
|                                                   | u. Robertson Way              | 10.0                        |                                 |                                  |
|                                                   | v. Dory Lane                  | 7.0                         |                                 |                                  |
| Total                                             |                               | 52.0                        |                                 |                                  |
| <u>State-Owned Lands</u>                          |                               |                             |                                 |                                  |
| <u>Type</u>                                       | <u>Name</u>                   | <u>Acres</u>                |                                 |                                  |
| <u>Regional</u>                                   | Wildlife Refuge (Bair Island) | 801                         |                                 |                                  |
|                                                   | College Site (Emerald Hills)  | 226                         |                                 |                                  |
|                                                   | Dikes (Redwood Peninsula)     | 123                         |                                 |                                  |
| Total                                             |                               | 1,150                       |                                 |                                  |
| <u>County-Owned Lands</u>                         |                               |                             |                                 |                                  |
| <u>Subregional</u>                                | Airport Clear Zone            | 20                          |                                 |                                  |
| <u>San Francisco Water Department-Owned Lands</u> |                               |                             |                                 |                                  |
| <u>Subregional</u>                                | Hetch-Hetchy Right-of-Way     | 45                          |                                 |                                  |





**OTHER PUBLICLY-OWNED  
OPEN SPACE**

**OPEN SPACE  
ELEMENT**



**TABLE III : PRIVATELY OWNED OPEN SPACE**

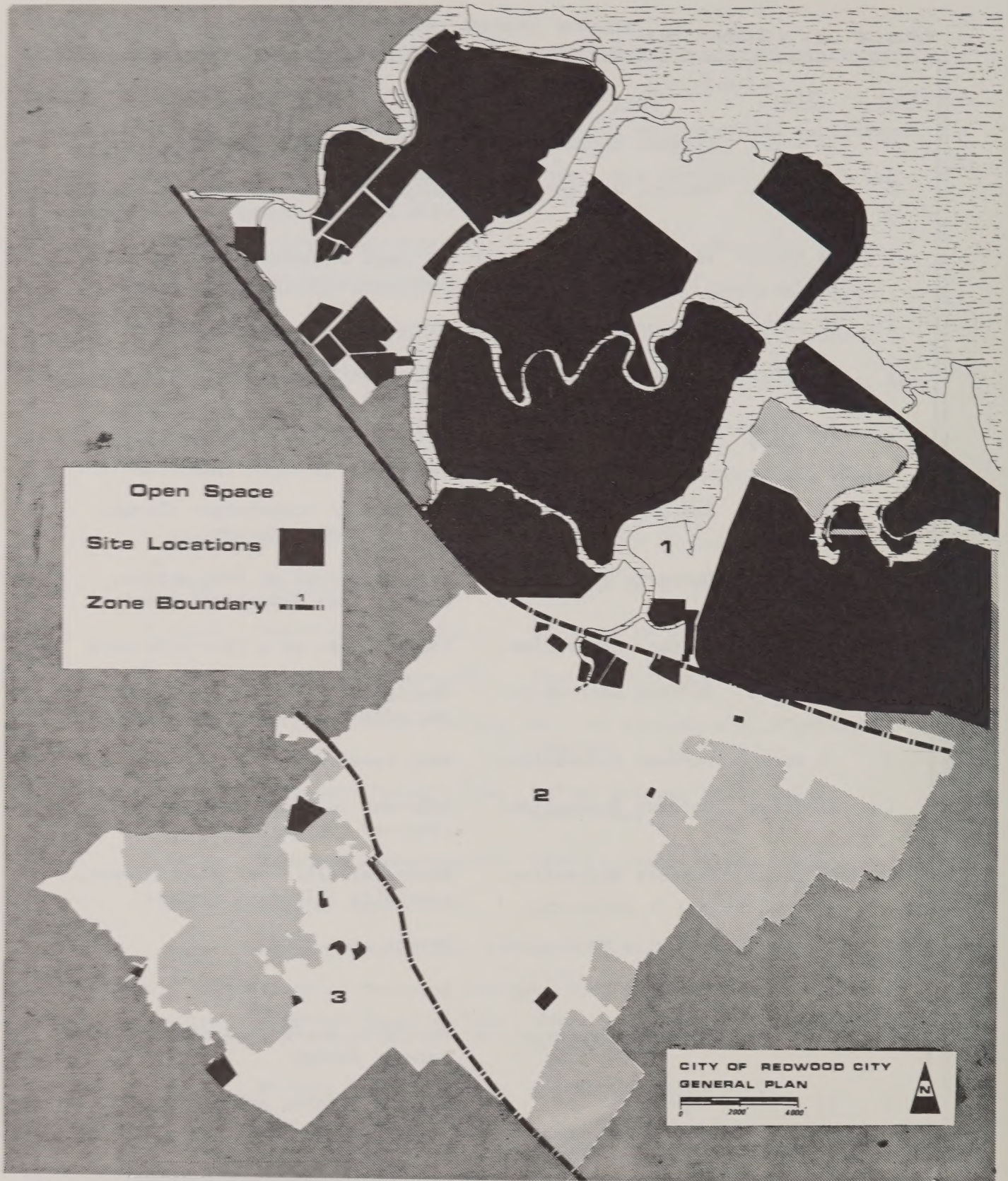
| <u>Zone</u> | <u>Size</u> | <u>Use</u>             | <u>Description</u>                              |
|-------------|-------------|------------------------|-------------------------------------------------|
| 2           | 4 acres     | Outdoor Recreation:    | Adjacent to commercial development              |
| 2           | 20 acres    | Outdoor Recreation:    | Prime site for historic park and museum         |
| 2           | 5 acres     | Outdoor Recreation:    | Surrounded by commercial uses                   |
| 1           | 3 acres     | Outdoor Recreation:    | Surrounded by industrial uses                   |
| 1           | 20 acres    | Outdoor Recreation:    | Surrounded by industrial uses                   |
| 1           | 12 acres    | Resource Production:   | Former salt pond in industrial use              |
| 1           | 21 acres    | Resource Production:   | Former salt pond, near industry                 |
| 2           | 2 acres     | Outdoor Recreation:    | Surrounded by commercial, light industrial uses |
| 2           | 1 acre      | Outdoor Recreation:    | Located in an industrial area                   |
| 2           | 1 acre      | Outdoor Recreation:    | Located in an industrial area                   |
| 1           | 3 acres     | Resource Production:   | Adjacent to oyster shell beds                   |
| 1           | 78 acres    | Resource Production:   | Former salt pond                                |
| 1           | 246 acres   | Resource Preservation: | Part of ecologically significant complex        |
| 1           | 27 acres    | Resource Preservation: | Buffer between Greco Island and other uses      |
| 1           | 6 acres     | Resource Preservation: | Part of Greco Island complex                    |
| 3           | 3 acres     | Outdoor Recreation:    | Extension of Canyon Park                        |
| 3           | 1 acre      | Outdoor Recreation:    | Small site, aesthetic, excellent view           |
| 3           | 4 acres     | Resource Preservation: | Heavily wooded, possible wildlife habitat       |
| 3           | 2 acres     | Safety:                | Relatively steep slope                          |
| 3           | 1 acre      | Safety:                | Steep slope, potential wildfire hazard          |



TABLE III: (CONT'D)

| <u>Zone</u> | <u>Size</u>     | <u>Use</u>             | <u>Description</u>                                                    |
|-------------|-----------------|------------------------|-----------------------------------------------------------------------|
| 2           | 3 acres         | Outdoor Recreation:    | Highly desirable local park site                                      |
| 3           | 14 acres        | Outdoor Recreation:    | Heavily wooded and steeply sloping with two structures, mostly vacant |
| 1           | 13 acres        | Resource Preservation: | Adjacent to Belmont Slough, possible bird feeding grounds             |
| 1           | 18 acres        | Outdoor Recreation:    | Surrounded by industrial uses                                         |
| 1           | 55 acres        | Outdoor Recreation:    | Filled salt pond, no significant flora or fauna                       |
| 1           | 55 acres        | Outdoor Recreation:    | Adjacent to interior waterway, Bayshore, and Scavenger property       |
| 1           | 118 acres       | Resource Preservation: | Adjacent to Steinberger Slough, site of Phelps Slough                 |
| 1           | 1,657 acres     | Resource Preservation: | Nesting ground of four herons, home of four endangered species        |
| 1           | 283 acres       | Outdoor Recreation:    | Possible use as a City-wide park                                      |
| 1           | 17 acres        | Outdoor Recreation:    | Contiguous with park in Belmont and adjacent to Belmont Slough        |
| 1           | 5 acres         | Outdoor Recreation:    | Near tidal basin                                                      |
| 1           | 21 acres        | Outdoor Recreation:    | Adjacent to Steinberger Slough, proposed housing site                 |
| 1           | 600 acres       | Outdoor Recreation:    | Sparse wildlife and plant growth, partially filled salt ponds         |
| 1           | 1,250 acres     | Resource Production:   | Former salt ponds                                                     |
| 1           | 62 acres        | Resource Preservation: | Adjacent to Steinberger Slough                                        |
| 1           | 106 acres       | Resource Preservation: | Partially marsh land adjacent to Belmont Slough                       |
| 3           | <u>23 acres</u> | Safety:                | Steeply sloping subject to erosion                                    |
|             | 4,760 acres     | Total                  |                                                                       |





**PRIVATELY - OWNED  
OPEN SPACE**

**OPEN SPACE  
ELEMENT**



An important component of the open space system is the 9,872 acres of open Bay water and sloughs located within the City limits. Ownership of these waters, however, is not easily categorized. Some Bay waters are definitely State-owned and City-owned, some are definitely privately-owned, and some are in disputed ownership currently undergoing litigation.

### C. GOALS

1. Provide and maintain an open space system that allows public access to publicly-owned open space when it will cause little or no damage to the environment.
2. Preserve as open space those areas where natural hazards threaten human life and safety.
  - a. Maintain standards for development on slopes greater than 15 percent.
  - b. Require environmental impact review for sites in known hazard areas.
  - c. Adopt specific hazard zones, e.g., "Flood Plain" and "Environmental Safety."
3. Preserve and enhance the natural terrain, vegetation, and beauty of Redwood City's various geographical areas.
  - a. Adopt natural resources zoning to assure maximum control over development in ecologically sensitive areas.
  - b. Implement the heritage provisions of Redwood City's Tree Ordinance.
  - c. Increase Redwood City's street tree planting program.
  - d. Encourage the retention of natural areas currently in public ownership.
4. Achieve and maintain a harmonious relationship between the natural environment and man's use of the land.
  - a. Preserve plant and animal communities and historic sites which possess unique scientific, aesthetic, or ecological value.
  - b. Purchase, lease, or seek easements over significant open space lands to assure their retention throughout the City.



5. Discourage the unnecessary or premature conversion of open space lands to urban use, and discourage urban development patterns which are either environmentally or monetarily costly to the community.
  - a. Continue "Agricultural Greenhouse" (AG) zoning as it now exists and afford "AG" protection to any greenhouse lands annexed in the future.
  - b. Maintain existing "Tidal Plain" (TP) zoning in those Bay-front areas which are, or can be used for salt harvesting, shell dredging, or other types of mineral extraction.
6. Protect and conserve open space areas which are primary wildlife habitats or which have major or unique ecological significance.
7. Establish a parks and recreation system in Redwood City which provides facilities conveniently located and properly designed to serve the recreational needs of all residents of the community.
  - a. Provide adequate park and recreational facilities, with convenient public access.
  - b. Link neighborhood recreational areas together through the use of pedestrian ways and bicycle paths.
  - c. Preserve and enhance small parcels of open space wherever practical in developed areas of the City, especially in those neighborhoods with the greatest park deficiency.
  - d. Investigate membership in the Midpeninsula Regional Park District.
8. Educate the public to value open space by incorporating environmental education courses into the Park and Recreation Department Program.

#### D. STANDARDS

Uniform standards applied to recreational space needs are not the ultimate answer in achieving an ideal balance in a parks and recreation system. The number of differing situations within a city makes it impossible to come up with one standard that will fit them all. For example, the recreational needs in a heavily concentrated area of large families with low incomes will be drastically different from those in a low density area of high income families. But, while such extreme situations certainly exist in Redwood City, the bulk of the population falls between these extremes, and uniform standards can serve as a useful starting point to test the level of





**OPEN SPACE PLAN**

**OPEN SPACE  
ELEMENT**



"adequacy" of service being provided, and to be provided, to any given area or to the entire City. Therefore, the following standards are employed to put the entire city into a single "recreational perspective" with respect to which all other considerations might be weighed.

1. Each neighborhood should be served by a neighborhood park and at least one playground, having a combined area of one-half acre for each 100 population. Where elementary school playgrounds within a neighborhood are made available to the general public during non-school hours, such playgrounds may count toward meeting this standard, acre for acre, up to a maximum of one-half of the total neighborhood need.
2. Each sector of the City made up of a group of neighborhoods should be served by a community park and playfield, having a total area of one-quarter acre for each 100 population. Where high school playfields within such sector are made available to the general public during non-school hours, such playfields may count toward meeting this standard, acre for acre, up to a maximum of one-half of the total need for the group of neighborhoods served.
3. The city in its entirety should be served by a centrally located city park, having a total area of one-quarter acre for each 100 population.
4. Regional parks and parkways should be provided at the standard of at least one acre for each 100 population.
5. Marinas and golf courses will generally be located within a city park or within a regional park.
6. In the application of open space standards, water bodies such as lakes, ponds, and lagoons may be counted as one-fourth of their total surface area in meeting neighborhood and community open space needs--if they are available for public recreational use, and if at least one-fourth of their shoreline is joined to a public recreational open space facility--provided that not more than one-fourth of the total neighborhood open space need, nor more than one-half of the total community open space need, may be satisfied by counting such water areas.
7. Slough waterways may be counted as regional open space up to the centerlines of the sloughs wherever they are bordered by public access areas such as parks, public marinas, or trails.





**OPEN  
SPACE** IS  
LAND OR WATER  
DEVOTED TO:

**PRESERVATION  
OF NATURAL  
RESOURCES**

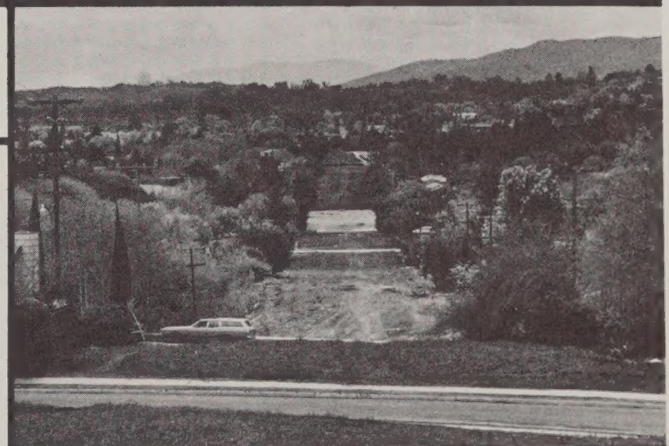


**PUBLIC HEALTH AND  
SAFETY (WATERSHEDS)**

**OUTDOOR  
RECREATION (PARKS)**

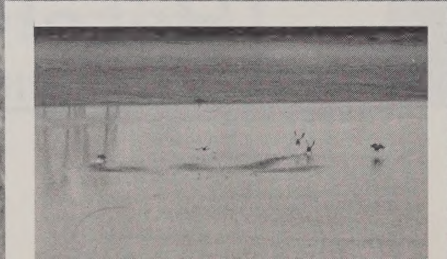
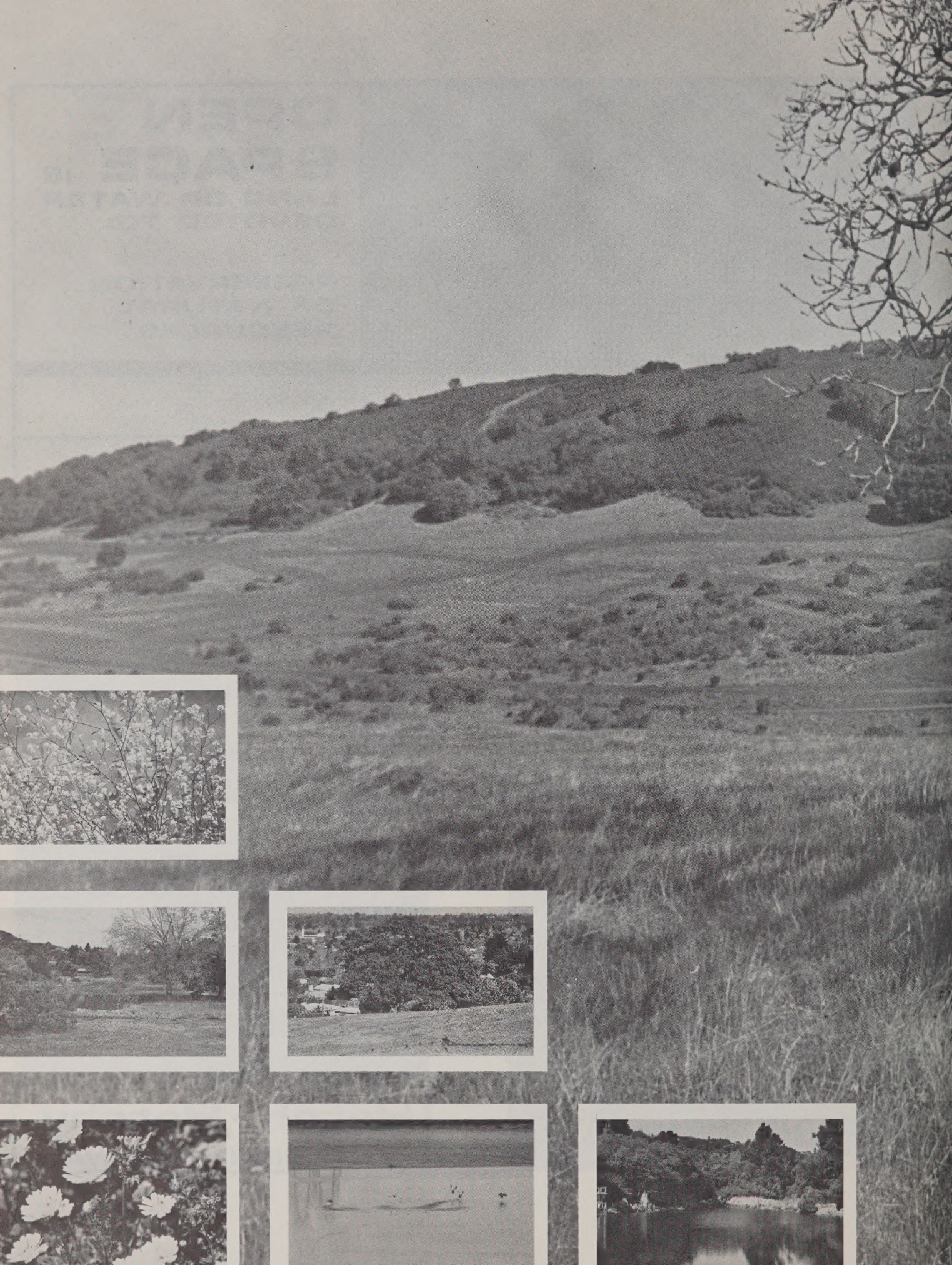


**MANAGED PRODUCTION  
OF RESOURCES  
(BAYS, MARSHES, ESTUARIES)**



**Hetch - Hetchy**  
**RIGHT - OF - WAY**











**TABLE IV: COMPOSITE INVENTORY OF PUBLICLY-OWNED  
RECREATIONAL LAND**

| <u>Type</u>              | <u>Standard<br/>Acres/1000 pop.</u> | <u>Total<br/>Need</u> | <u>Present<br/>Total</u> | <u>Differential</u> |
|--------------------------|-------------------------------------|-----------------------|--------------------------|---------------------|
| Neighborhood             | 5                                   | 270 acres             | 96 acres                 | -174 acres          |
| Community/<br>City-wide  | 5                                   | 270 acres             | 140 acres                | -130 acres          |
| Regional/<br>Subregional | 10                                  | 540 acres             | 924 acres                | 384 acres           |

#### E. PROPOSALS

As illustrated in the Composite Inventory of Publicly-owned Open Space, Redwood City is deficient in both neighborhood and community/city-wide open space acreage. In addition many of the sites listed in the Other Publicly-Owned Open Space category are not permanently dedicated to open space use. For example, decreasing school enrollments coupled with fiscal constraints may necessitate the sale of vacant and/or already developed school sites.

The Open Space Element prescribes the course for reducing current deficiencies and assuring future residents a sufficient supply of open space land by type and category. The proposals outlined below will help provide the direction needed in order to achieve the City's open space goals.

1. Initiate a study of Open Space and Conservation zoning in order to determine its feasibility for Redwood City.
2. Designate the Coast Redwood as a heritage tree.
3. Increase the street tree planting program along Roosevelt and Jefferson Avenues.
4. Continue the development of preliminary plans for the recreational development of the Hetch-Hetchy right-of-way by the Park and Recreation Commission.
5. Encourage subdividers and developers to set aside land for parks with the cost of acquiring such park lands to be shared through equitable assessments.
6. Investigate annexation to the Midpeninsula Regional Park District.
7. Continue study of future nature of Stulsaft Park.



8. Consider a "willing seller" fund for park land acquisitions.
9. Initiate a study of Flood Plain and Environmental Safety zoning districts in order to determine their possible application to Redwood City.
10. Institute environmental education classes within the Park and Recreation Department Program.

#### F. ENVIRONMENTAL ASSESSMENT

Implementation of the Open Space Element will enhance the quality of the local environment by providing additional Park and Recreational facilities, by limiting development in hazardous areas, by preserving lands which serve as wildlife habitat and plant sanctuaries, and by preserving areas used in the managed production of local resources. Implementation of the element will increase the range of benefits available in the local environmental setting and will improve the quality of local air and water resources.

#### G. IMPLEMENTATION

Implementation of the Open Space Element takes the form of Zoning Ordinance amendments, land acquisition, and landscape development. Some proposals would involve decisions and expenditures by various public bodies, including the City, the County, the State, the Federal Government, and the respective School Districts. The San Francisco Bay National Wildlife Refuge is a Federal responsibility, although much of the refuge within the City is State-owned. Cooperation and coordination among all agencies is important in the implementation of the Open Space Element.



# **OPEN SPACE ELEMENT PROPOSALS**

| Project                     | Location             | Action               | 1975-                                                                                 | 1980-                                                                                 | 1985-                                                                                 | 1990-                                                                                 | 1995-                                                                                 |
|-----------------------------|----------------------|----------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                             |                      |                      | 80                                                                                    | 85                                                                                    | 90                                                                                    | 95                                                                                    | 2000                                                                                  |
| 1. Open Space Zoning        | City-wide            | Initiate study       |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 2. Heritage Tree            | City-wide            | Designate Redwood    |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 3. Street Tree Planting     | Jefferson, Roosevelt | Increase numbers     |    |    |    |    |    |
| 4. Hetch-Hetchy             | City-wide            | Develop plans        |    |    |    |                                                                                       |                                                                                       |
| 5. Park Land                | City-wide            | Encourage dedication |    |    |    |    |    |
| 6. Regional Park District   | City-wide            | Investigate          |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 7. Stulsaft Park            | Stulsaft Park        | Study                |    |    |    |    |    |
| 8. Willing Seller Fund      | City-wide            | Consider             |   |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 9. Flood Plain Zoning       | City-wide            | Study                |  |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 10. Environmental Education | City-wide            | Institute            |  |  |  |  |  |



# **ADDITIONAL PROPOSALS**

| Project                  | Location       | Action                  | 1975-<br>80 | 1980-<br>85 | 1985-<br>90 | 1990-<br>95 | 1995-<br>2000 |
|--------------------------|----------------|-------------------------|-------------|-------------|-------------|-------------|---------------|
| Historical Park          | Neighborhood 1 | Purchase                |             |             | ●           |             |               |
| Tidal Plain Zoning       | Bayfront       | Review                  | ●           | ●           | ●           | ●           | ●             |
| Lower Density            | Hillside       | Amend Zoning Ordinance  |             | ●           |             |             |               |
| Existing Park            | Zone 3         | Purchase extention      | ●           |             |             |             |               |
| Neighborhood Park        | Zone 2         | Purchase                |             | ●           |             |             |               |
| Safety                   | Zone 3         | Purchase                |             | ●           |             |             |               |
| Wildlife Habitat         | Zone 1         | Purchase                |             | ●           |             |             |               |
| Safety                   | Zone 3         | Change zoning           | ●           |             |             |             |               |
| City-Wide Park           | Zone 1         | Lease, purchase         |             |             |             |             | ●             |
| Neighborhood Park        | Zone 1         | Lease, purchase         |             |             |             |             | ●             |
| Primary Wildlife Reserve | Zone 1         | Zoning, lease, purchase | ●           |             |             |             |               |
| Neighborhood Park        | Zone 1         | Lease, purchase         |             |             |             |             | ●             |
| Wildlife Habitat         | Zone 1         | Zoning                  | ●           | ●           | ●           | ●           | ●             |
| Neighborhood Park        | Zone 2         | Purchase                | ●           |             |             |             |               |
| Neighborhood Park        | Zone 2         | Lease, purchase         | ●           | ●           |             |             |               |
| City-Wide Park           | Zone 3         | Lease, purchase         |             | ●           | ●           | ●           |               |
| Sub-Regional Park        | Zone 3         | Lease, purchase         |             | ●           | ●           |             |               |









**CONSERVATION**

**5**





## A. PURPOSE

The CONSERVATION ELEMENT of the General Plan is designed to inventory the community's natural and cultural resources and prescribe a policy for their preservation and judicious utilization. The specific resources which are included within the scope of this element are:

- Geological and topographical resources
- Mineral resources
- Climatic resources
- Water resources
- Soils resources
- Vegetative resources
- Wildlife resources
- Social, cultural, and historic resources

As pressures for the development of vacant land continue, the Conservation Element can provide a useful framework for the designation of developable lands and for lands which should be preserved because of their important role within Redwood City's ecosystem.

## B. EXISTING CONDITIONS

Redwood City is divided into three distinct ecological zones, each possessing relatively unique physical, animal, and vegetative characteristics. The first of these zones extends from the middle of San Francisco Bay to the vicinity of Veterans Boulevard and is characterized by waterways, sloughs, marsh lands, and plant and animal communities typical of bayland environments. The next zone extends from Veterans Boulevard to the vicinity of Alameda de las Pulgas and is characterized by intensive urban development. Plant life consists largely of introduced landscaping. Animal life is scarce, consisting primarily of small domesticated animals. The third zone is the hillside zone which is sparsely developed. Many indigenous plant and animal species still inhabit this area. Several inactive faults crisscross this section, and virtually all of the City's unstable soil types are located here.

1. Geology: Redwood City is an extension of the Santa Clara Valley, which consists of alluvial fans merging with the sediments of the Bay floor. The western boundary of the City is accentuated by the foothills, which consist of up-lifted Eocene formations, containing numerous faults and covered by sediments of varying thickness. Many of the hillside bedrocks are inherently unstable. No major fault passes through the City limits; however, the San Andreas Fault is located immediately to the west, and the Hayward



fault is located across the Bay to the east. Portions of the hillside area are landslide-prone.

2. Topography: The City's topography varies most dramatically from east to west. To the west of the City is the crest of the Santa Cruz Mountain range, nearly 2,000 feet high, which slopes northeasterly into the San Andreas rift valley and then rises to approximately 850 feet at the crest of the Emerald Hills. From these hills, after sharp drops, the topography slopes gently toward the Bay plain, and ultimately the tidal flats. The City's north-south axis exhibits no marked features. Redwood City's hills and mountains function not only as a visual backdrop and climate moderator, but also as a vantage point for panoramic views of the South Bay area.

3. Mineral Resources: Three significant mineral resources are located in the Redwood City area: salts and related chemicals; oyster shell deposits; and cinnabar, a mercury deposit.

Salts derived from the solar evaporation system of the Leslie Salt Company were, for many years, the area's most significant mineral resource. The dry climate, moderate winds, and the low elevation of Redwood City's marsh lands were ideally suited for salt evaporation purposes. Because of economic disadvantage, however, Leslie Salt Company announced termination of salt production in 1974.

Large concentrations of oyster shell deposits are located just beyond Greco Island. Between 1925 and 1970, tons of these shells were harvested and used as primary ingredients in the production of cement. The shells, derived largely from native oysters, were also used as poultry feed and as soil conditioners. Water pollution and the lowering of local water quality has decimated the oyster population.

Cinnabar, or mercury deposits, are located along the western edge of Stulsaft Park, adjacent to the Farm Hills Subdivision. During 1956 and the early part of 1957, 2,889 tons of cinnabar were mined. Currently, mercury prices are low making extraction economically unfeasible. An additional concern is the negative impact of open pit ore production upon the surrounding area.

4. Climate: Redwood City's climate is moderate, experiencing infrequent temperature, rainfall, or wind velocity extremes. The Santa Cruz Mountains to the west generally keep the rainfall under 23 inches (58 centimeters) per year and screen cool, foggy breezes during the summer months. The City's mean maximum seasonal temperatures are 53° F. (12° C.) in January and 81° F. (27° C.) in July. Precipitation,



generally in the form of rain, occurs primarily between the months of November and April. Due to the marine influence, average daily humidity varies only slightly from 75 percent in summer to 80 percent in winter. Approximately 70 percent of the City's annual evaporation occurs between May and October. This extremely favorable evaporation pattern explains why much of Redwood City's baylands have been used for salt evaporation purposes.

Winds are generally moderate, averaging under four miles per hour much of the time. Though winter winds are stronger, they remain below 23 miles per hour 98 percent of the time. Wind direction is predominately north to northwest.

Regional temperature inversions coupled with low wind velocities during periods of high temperature can significantly raise oxidant levels.

5. Water Resources: The City's most important water resource is the Bay, which not only provides extensive support for plant and animal communities, but also contributes to Redwood City's mild climate and natural beauty. Additionally, the Bay provides recreational opportunities for boaters, fishermen, and outdoor enthusiasts.

Further water resources are the City's sloughs and tidal waterways, which include Belmont, Steinberger, Corkscrew, Smith, and Westpoint Sloughs, and Redwood Creek. Redwood Creek is the most important of these waterways since its 30-foot deep dredged channel provides access to the Port of Redwood City.

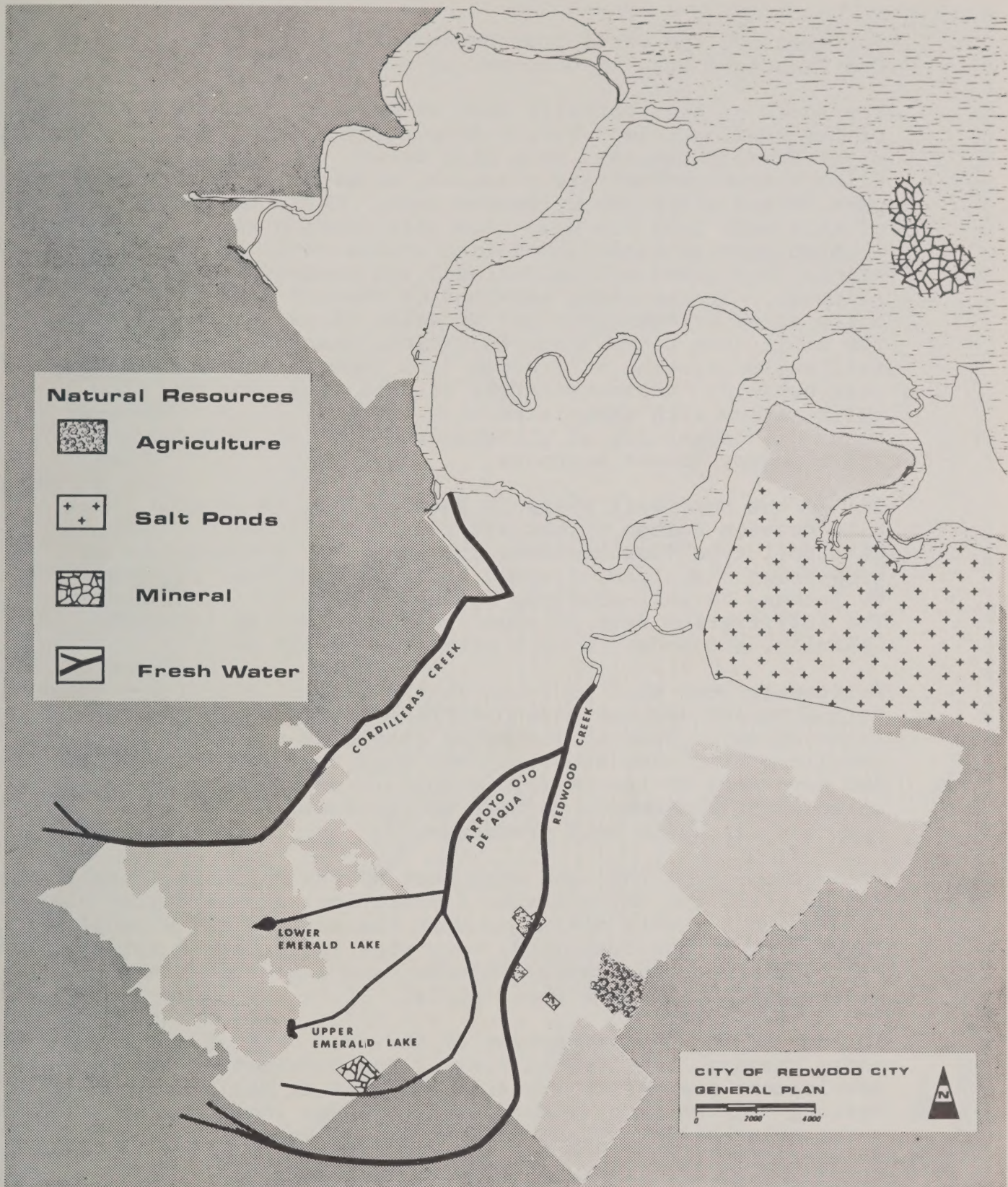
Interior waterways, controlled from tidal action, form an integral part of the Redwood Shores community and provide recreational access as well as aesthetic relief for the residents of Redwood Peninsula.

The City's fresh water resources are limited to three streams which originate in the hills and terminate at the tidewater sloughs, and two small lakes. These are, respectively, Cordilleras Creek, Redwood Creek, Arroyo Ojo de Agua, and Upper and Lower Emerald Lakes.

Though the City currently relies, for drinking water purposes, upon Hetch-Hetchy water imported via an extensive aquaduct system, local ground waters could become an important source of drinking water in an emergency. Care should be taken to avoid excessive ground water removal because of the problem of subsidence of the underground reservoirs.

6. Soils: Redwood City, geographically situated between the





## NATURAL RESOURCES

## CONSERVATION ELEMENT



foothills of the Santa Cruz Mountains and the tidal lands of San Francisco Bay, is composed of a variety of soil types.

The soils of the foothills area of Redwood City are generally of the shallow to moderately deep stony upland type. In the upper Emerald Lake and Farm Hill areas, the soils (Montara-Climara association) are granular, originating from serpentine and ultra basic igneous rock. Characteristics of this soil type are very slow infiltration rates resulting in high erosion hazard, moderate shrink-swell behavior, slight soil pressure limitations, and tendency toward slippage. In the lower portions of Emerald Hills and the hilly areas of Roosevelt and Woodside Plaza neighborhoods, the soils (Los Gatos-Sobranete-Gaviota association) are fairly shallow, consisting of a brown loam topsoil over a hard clay loam subsoil. Characteristics of this soil type are slow infiltration with associated high erosion, low shrink-swell behavior, capability of withstanding high soil pressures, and tendency toward slippage.

One of the best soil areas in Redwood City is located generally between Fulton Street and the base of the foothills. This soil type (Zamora-Pleasanton-Danville association) is gray-brown clay loam, forming a topsoil layer of at least 60 inches, is well-drained, and has a high inherent fertility. The infiltration rate is slow, with moderate shrink-swell behavior, and moderate soil pressure limitations.

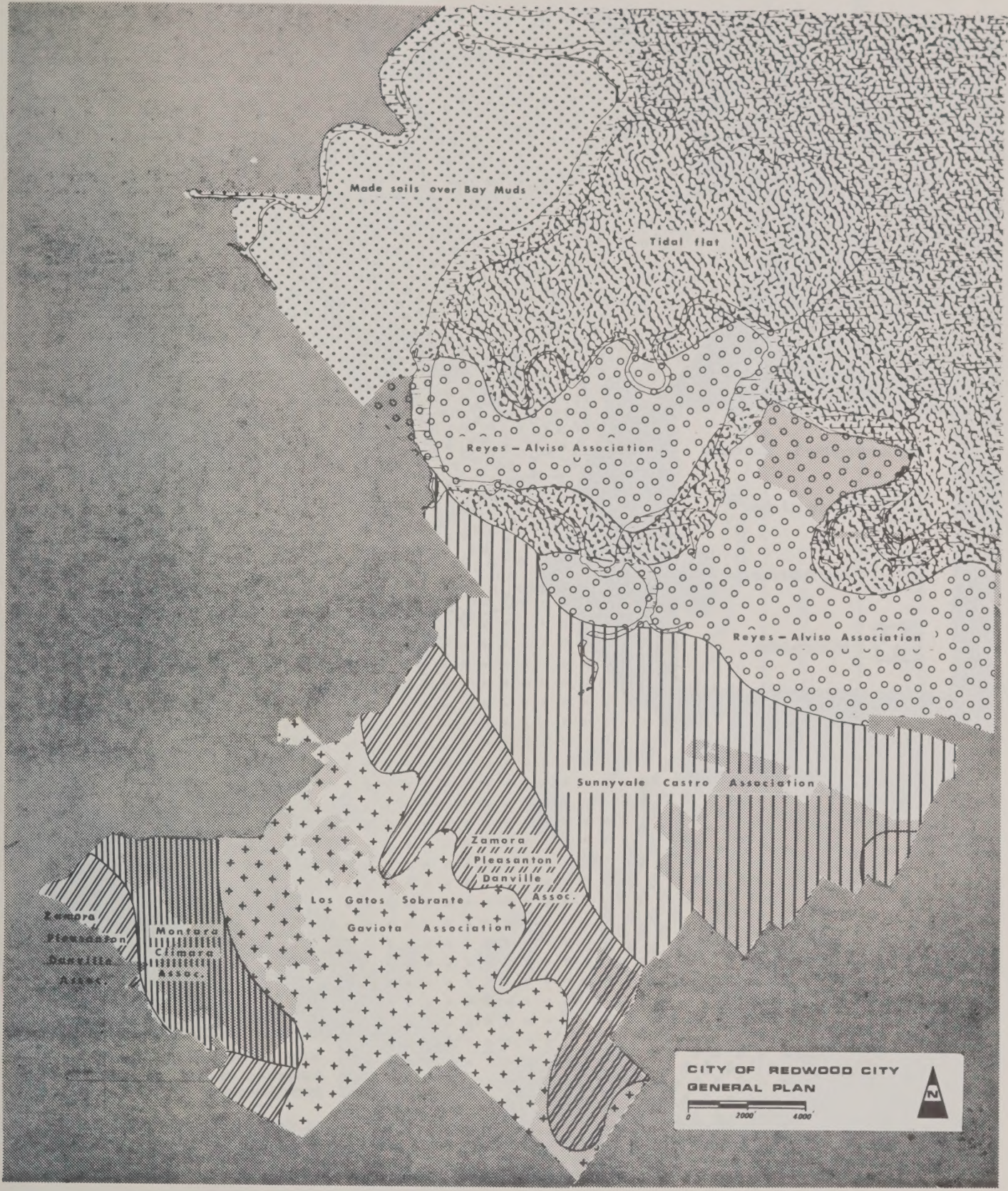
Relatively poor soil is found in the area of the City between Fulton Street and the Bayshore Freeway (Sunnyvale-Castro association). Over 60 inches of gray clay and silty clay overlie a hard clay subsoil. The fine texture of the soil and levelness of the terrain result in poor drainage. These soils exhibit moderate to high shrink-swell behavior and moderate allowable soil pressures.

Soils comprising the land area east of the Bayshore Freeway (tidal flats and Reyes-Alviso association) are hard gray clay with organic layers making up both the surface and subsoil layers. Very low fertility, very slow infiltration rates, high shrink and low swell behavior, and low allowable soil pressures characterize these soils.

In the Redwood Shores portion of the area east of the Bayshore Freeway, the typical tidal flats have been filled for development purposes. The fill material is derived from various sources such as dredging spoils or imported cuts from surrounding hills. These fill soils are generally poorly drained.

7. Vegetation: Redwood City's native flora have almost totally

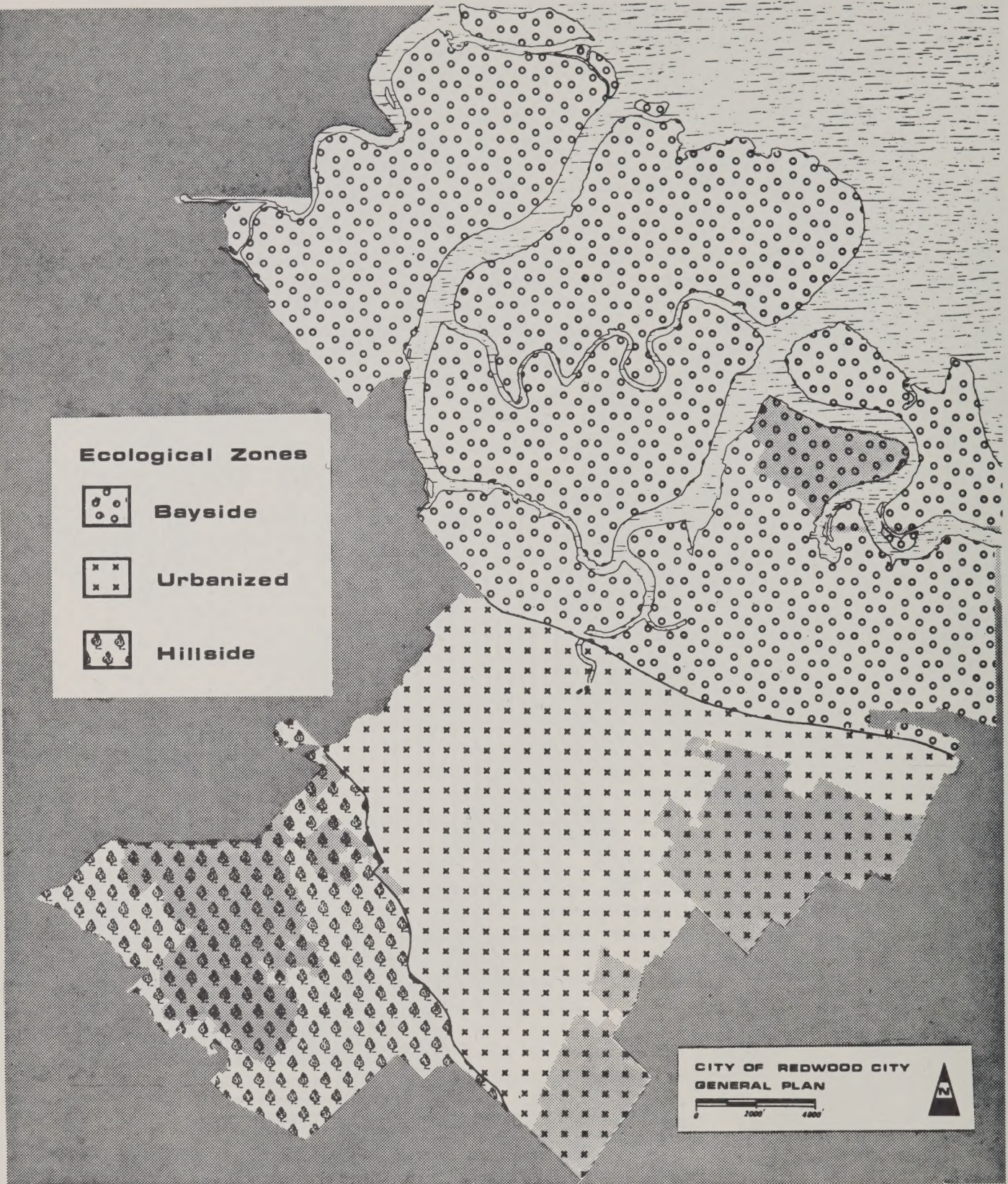




# SOIL TYPES

# CONSERVATION ELEMENT





**Ecological Zones**



**Bayside**



**Urbanized**



**Hillside**

**CITY OF REDWOOD CITY  
GENERAL PLAN**

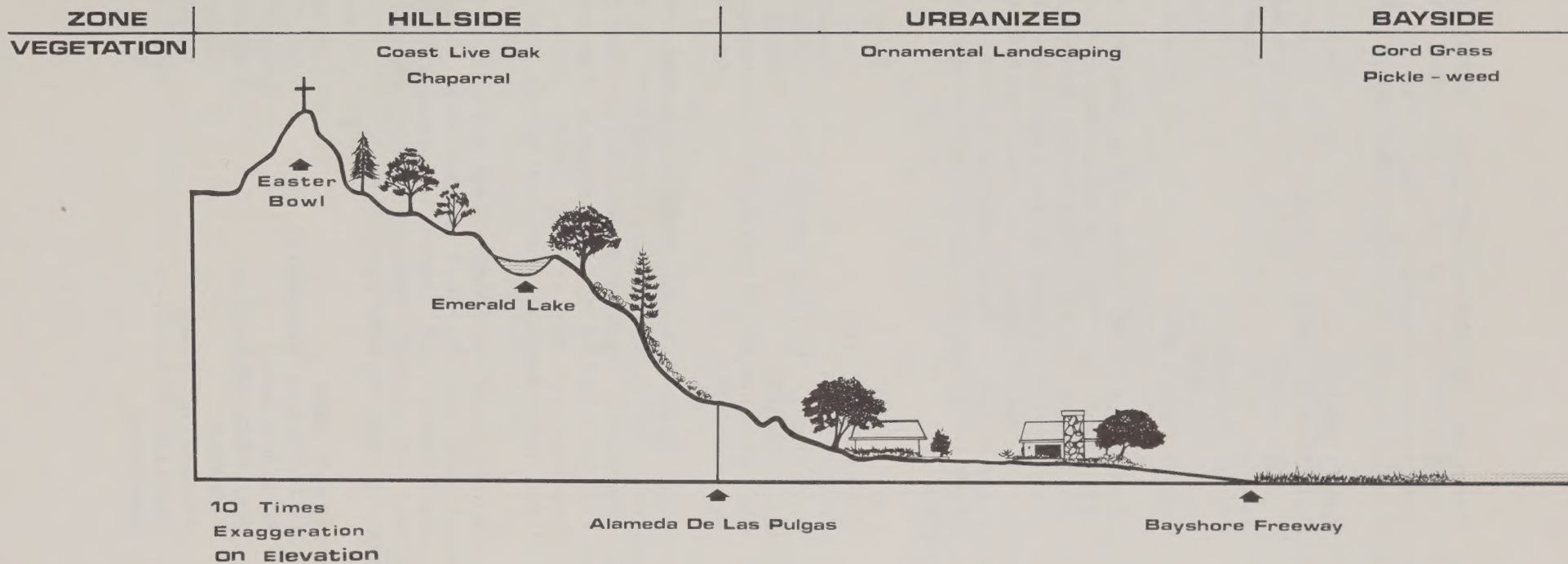
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**ECOLOGICAL ZONES**

**CONSERVATION  
ELEMENT**





## ECOLOGICAL PROFILE

CONSERVATION  
ELEMENT



been overcome by urbanization. Remnants of native vegetation exist in the foothills and baylands, but introduced species show a strong influence. Examples of native vegetation found in the salt marsh and the tidal meander areas include:

|                       |              |
|-----------------------|--------------|
| Salt Grass            | Marsh Dodder |
| California Cord Grass | Salt Bush    |
| Pickle-weed           | Cattail      |
| Sea Blite             | Jaumea       |
| Marsh Grindelia       | Sweet Anise  |
| Marsh Rosemary        | Docks        |
| Hedge Mustard         | Wild Oats    |

The California Cord Grass is a highly productive organism, producing five to ten times as much food and oxygen per acre as highly cultivated crops such as wheat. Ninety-five percent of the cord grass goes into the water as detritus (minute organic particles from decomposing organism) which serves as a major food source for fish and shrimp. Examples of native vegetation found in the upland areas of the City include:

|                         |                   |
|-------------------------|-------------------|
| Scrub Oak               | Coyote Bush       |
| Coast Live Oak          | California Laurel |
| Chamise                 | Spearmint         |
| California Coffee Berry | Manzanita         |
| Buck-Brush              | Wild Lilac        |
| Christmas Berry (Toyon) | Digger Pine       |
| Poison Oak              | California Poppy  |

The Coast Live Oak and the Scrub Oak, to use specific examples, are intricately involved in the health of the upland chaparral biotic community. The oaks host a variety of insects, providing a food source for many birds; the acorns are consumed by squirrels, deer, jays, and woodpeckers; and the branches provide nesting sites for birds.

The majority of Redwood City's land area between the Bayshore Freeway and the foothills has been urbanized, resulting in the replacement of native vegetation with ornamental landscaping and street trees. Examples of some of the most common street trees are:

|                     |                   |
|---------------------|-------------------|
| Sweet Gum           | Locust            |
| California Sycamore | Acacia            |
| Modesto Ash         | Oak               |
| Southern Magnolia   | Maple             |
| Camphor             | Almond            |
| Flowering Plum      | Olive             |
| English Walnut      | California Pepper |
| Hawthorn            | Palm              |



Elms  
Japanese Privet

Birch  
Bottlebrush

An exception to the urbanization of the area between the Bayshore Freeway and the foothills is Stulsaft Park, adjacent to a portion of the Arroyo Ojo de Agua, where some natural vegetation is retained. The Sequoia High School property and the Community Park are areas of substantial vegetation, with mature trees, but much of this vegetation has been introduced.

8. Wildlife: The types of wildlife found in any given area are dictated by the types of vegetation resulting from geological conditions and climatic influences. Redwood City's primary wildlife resources lie in the salt marsh of the baylands and the chaparral of the foothills. Classes of wildlife found in the salt marsh include birds, mammals, fish, invertebrates, and insects--all of which depend upon one another and the native plant life for survival. One of the species, the Red-bellied Salt Marsh Harvest Mouse, a unique creature adapted to drinking salt water, is known to exist only in the salt marsh environment and is now protected by law.

Three of the salt marsh inhabitants are now listed on the California Department of Fish and Game Rare or Endangered Species List: Red-bellied Salt Marsh Harvest Mouse, California Brown Pelican, and California Clapper Rail. The salt marsh is part of the Pacific Flyway and hosts a great variety of birds. The following list of wildlife, however, includes only those birds known to nest in the salt marsh. Examples of wildlife which may be found in the salt marsh, tidal meanders, shoreline of the Bay, and in the water, include:

#### Birds

California Brown Pelican (ENDANGERED)  
California Clapper Rail (ENDANGERED)  
Marsh Hawk  
Short-eared Owl  
Long-billed Marsh Wren  
Bi-colored Red-winged Blackbird  
Western Meadowlark  
Great Blue Heron  
Willet  
American Avocet  
Black-necked Stilt  
Mallard  
Western Gull  
Double-crested Cormorant



# CONSERVATION



**COAST  
REDWOOD**

**SEQUOIA  
SEMPERVIRENS**



1



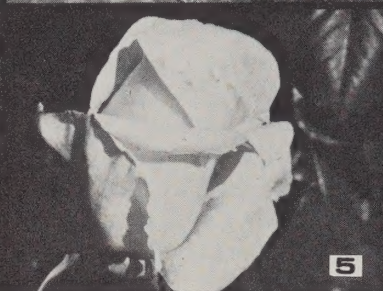
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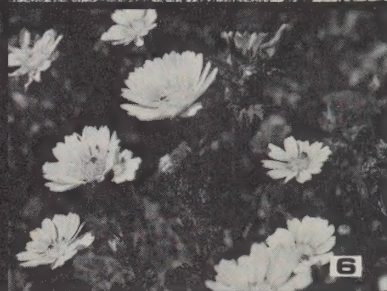
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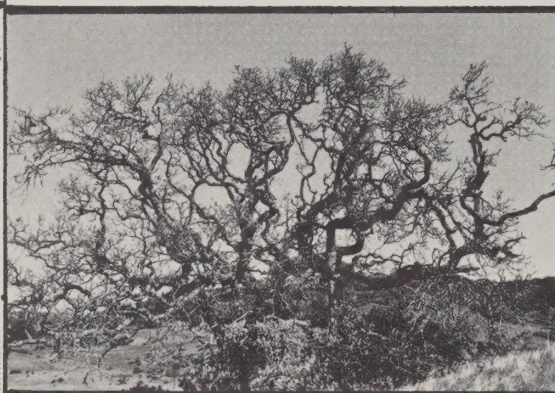


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## Vegetative Resources

City's native flora have almost totally been overcome by urbanization. Remnants of native vegetation exist in the foothills and baylands, but introduced species show a strong influence.

- 1 California Laurel    2 Hillside vegetation    3 Pickle weed  
4 California Poppy    5 Rose    6 Marsh Grindelia

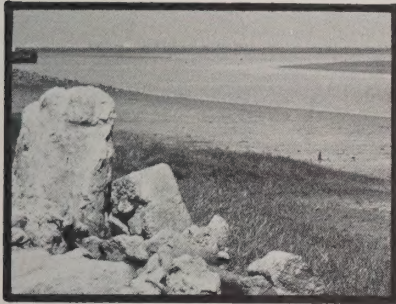


The CONSERVATION ELEMENT can provide a useful framework for the designation of developable lands and for lands which should be preserved because of their important role within Redwood City's ecosystem.

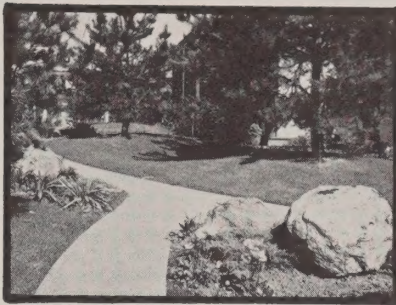


# Ecological Zones

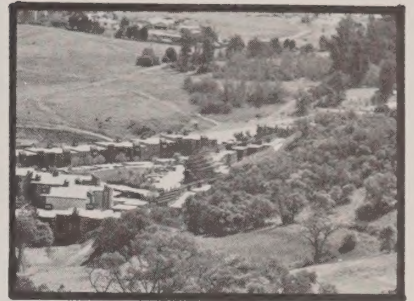
## Bayside



## Urbanized



## Hillside



## WILD LIFE

Preserve & protect  
existing wildlife



1



2

1 Black-Tail Jack Rabbit

2 Salt Marsh Harvest Mouse

3 Domestic Duck 4 Mallard 5 Mule Deer

6 Gull 7 Great Blue Heron



3



4



5



6



7



### Mammals

Red-bellied Salt Marsh Harvest Mouse (ENDANGERED)  
Black-tailed Jack Rabbit  
California Vole  
Vagrant Shrew  
Harbor Seal  
Bay Porpoise

### Invertebrates

Mussels  
Oysters  
Whelks  
Limpets  
Barnacles  
Crabs  
Clams  
Brackish Water Shrimp  
Brine Shrimp

### Fish

Diamond Turbot  
Starry Flounder  
Black Perch  
Mudsucker  
Brown Smoothhound Shark  
White Sturgeon  
Green Sturgeon

### Insects

Salt Marsh Fly  
Salt Marsh Mosquitoes

The wildlife habitats of Bird Island, portions of Redwood Peninsula and Bair Island, and Greco Island are in the process of being integrated into the San Francisco Bay National Wildlife Refuge.

Classes of wildlife found in the relatively unurbanized portions of the foothills area of Redwood City include birds, mammals, reptiles, and fish (in the fresh water streams and lakes). The San Francisco Garter Snake, once found commonly in San Mateo County in vegetation bordering ponds and lakes, is now on the Endangered Species List. Examples of wildlife which may be found in the foothills chaparral area include:

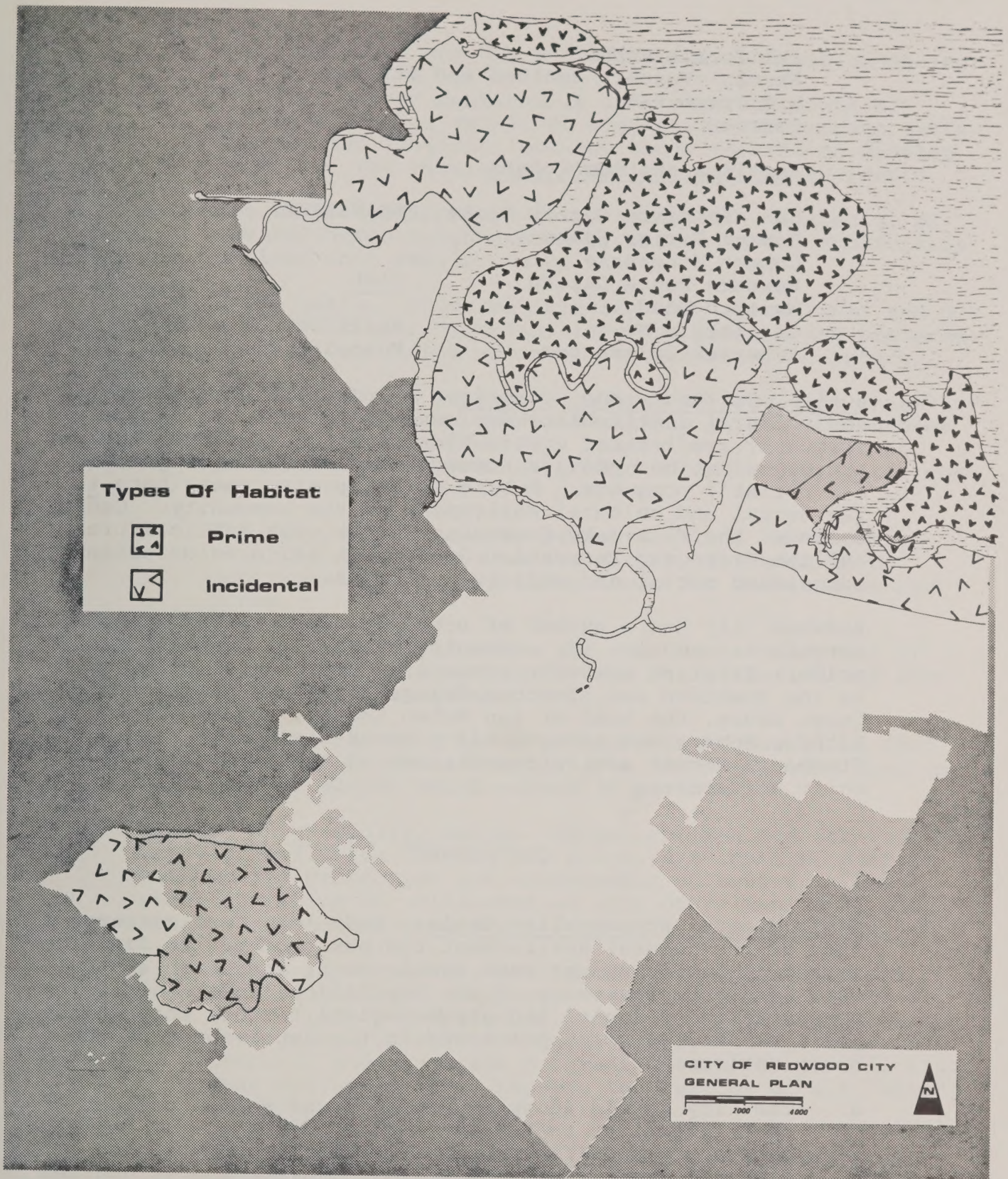
### Birds

Hawks--Red-tailed and Sparrow  
Great Horned Owl  
Sparrows--White-crowned, Fox, and Song  
Finches--House and Purple  
Bewick's Wren  
Robin  
Brewer's Blackbird

### Mammals

Mule Deer  
Squirrels--California Ground, Western Grey, and Fox  
Norway Rat  
Brush Rabbit  
Deer Mouse





## WILDLIFE HABITATS

## CONSERVATION ELEMENT



California Mouse  
Skunks--Western Spotted and Striped  
Big Brown Bat  
Raccoon

Reptiles and Amphibians

|                                         |               |
|-----------------------------------------|---------------|
| San Francisco Garter Snake (ENDANGERED) |               |
| Common Garter Snake                     |               |
| Common Kingsnake                        |               |
| Western Fence Lizard                    | <u>Fish</u>   |
| Western Toad                            |               |
| California Newt                         | Sticklebacks  |
| Arboreal Salamander                     | Mosquito Fish |

9. Social, Cultural, and Historic: A number of diverse social and cultural institutions designed to benefit the entire community are located within Redwood City. Private clubs and organizations provide numerous musical, philosophical, and artistic programs. Public agencies also contribute to the social and cultural enrichment of the community. Cañada College, the Fair Oaks Community Center, the Public Library, and the Parks and Recreation Department all provide extensive and varied social and cultural programs.

Redwood City has a number of historic sites which, if conserved, can enhance the community's sense of identity and pride. Existing historic structures are located primarily in the downtown and downtown fringe areas. The Old County Court House, the Bank of San Mateo County, the Benjamin Lathrop House, and several old pioneer residences along Stambaugh Street are representative of still existing historic structures.

C. GOALS

1. Environmental Preservation Goals: Make long-term conservation of the natural environment the basis of public decisions regarding public and private development; encourage and promote long-term residency of the population; and recognize the conservation of social and psychological factors through the political and economic processes in the improvement of the human environment.
- a. The City should adopt a philosophy of social concern that recognizes that human rights, dignity, and man's dependency upon his environment may take precedence over economic issues, as well as improve and strengthen the responsiveness of City government to the needs of



the individual and his participation in decision-making.

- b. The City should continually seek ways and means of bringing about a spirit of cooperation to promote satisfaction and longevity between those seeking to develop property, the regulating agencies, and the residents.
  - c. The City should preserve the estate-like character of the Arlington neighborhood by resisting the subdivision of land into smaller parcels.
2. Open Space Goals: Conserve existing open space lands and potential recreational opportunities, and promote the preservation of more open space wherever warranted in the future.
- a. The City should support a program of providing areas for future open space. Environmentally unique open spaces such as San Francisco Bay, its tributaries, sloughs, and marshlands should be protected and enhanced for conservation and recreation purposes.
  - b. The City should seek to preserve all of the existing marsh lands adjacent to the City by not permitting additional filling of these lands for development purposes.
  - c. The City should preserve the open space character of Bair Island by limiting its use to recreation and low-intensity development.
  - d. The City should seek to preserve the forest-like character of the Emerald Hills area by restricting development on slopes which exceed 30 percent.
3. Air and Water Quality Goals: Secure optimum freedom from all types of pollution for health, peace, and comfort; contribute to the protection and enhancement of ambient air and water qualities in collaboration with other municipal and regional agencies; conserve all potable water supplies.
- a. Within legal constraints imposed by Regional, State, and Federal regulatory agencies, and within the local community's perception of acceptable levels of economic cost, the City should impose appropriate environmental controls and encourage programs within its jurisdiction that will measurably improve the quality of air, water, and other natural resources.
  - b. The City should cooperate with other municipalities, the Bay Area Air Pollution Control District, the Federal Environmental Protection Agency, and similar



agencies concerned with preserving or improving ambient air quality through encouragement of practices and enforcement of regulations designed to protect and improve the air quality of the sub-region.

- c. Water supplies from existing sources should be conserved through increasing reclamation of waste waters for suitable uses, and the water quality and quantity of underground aquifers should be protected as an alternate emergency source of fresh water. Fresh water from upland streams and man-made lakes should be protected and enhanced as alternate sources of emergency water supplies.
4. Wildlife Preservation Goals: Preserve and protect existing wildlife; preserve and enhance existing natural physical features such as hillside areas, marshes, and mud flats that are beneficial to various forms of life in and around Redwood City.
- a. The natural environment should be conserved and enhanced by enactment and enforcement of regulations controlling excessive grading and unnecessary scarring of hillside areas, with its attendant visual degradation and increased rates of siltation in the lower reaches of City drainage channels and sloughs, and by diligent enforcement of the Heritage Tree Ordinance to protect and encourage the multiple benefits of the growth of mature trees in public and private areas.
  - b. Prime animal habitat areas should be conserved by protecting the natural vegetative growth of the Redwood City area. Such growth includes marsh vegetation in addition to upland grasses, bushes, trees, and other forms of vegetation. In addition, judicious restraint should be exercised in the control of other forms of life essential to the food chain in animal habitats.
5. Resource Recovery Goals: Conserve existing resources through recycling; encourage the development of new energy resources.
- a. The City should give tangible and intangible support to the development of recycling centers.
  - b. The City should develop new methods of utilizing energy sources created through recycling of solids, liquids, and gases from household, commercial, and industrial wastes.
  - c. The City should encourage the development of recycling



centers at strategic locations within the City at a ratio of one center per 20,000 population.

- d. The City should enact appropriate regulations controlling disposal of solid wastes by residents, commerce, and industry.

6. Hazardous Areas Recognition Goals: Prevent development of hazardous areas by restricting their use to the type of development they can support.

- a. Development of public and private facilities in seismically hazardous areas should be prohibited unless it can be satisfactorily demonstrated that such facilities can be developed at an acceptable level of safety risk and at an acceptable economic cost to the general public.
- b. Development in areas with slope intensities in excess of 30 percent should generally be prohibited unless it can be demonstrated that no degradation of the local and City-wide environment will result and unless it is in the public interest to do so.

7. Cultural Enrichment Goals: Conserve the historic, cultural, and aesthetic values of Redwood City; conserve and develop a wider variety of cultural opportunities; and conserve and enhance a sense of civic continuity in the cultural atmosphere of the City.

- a. The City should encourage the recognition of the historical value of older structures in the City and designate various structures for preservation and restoration.
- b. The City should encourage the preservation of all indigenous trees with a diameter of 12 inches or more.
- c. The City should give tangible and intangible support to local programs and institutions designed to culturally enrich the lives of all its citizens.
- d. Civic consciousness, pride, and cultural enrichment should be fostered through support and encouragement of ethnic and all cultural events, development of a centrally located cultural center and civic auditorium complex, improved community appearance, development of special cultural facilities and programs whenever a proven need arises, and similar measures.
- e. The visual qualities of the community should be pre-



served and improved through enactment and enforcement of legislation creating architectural and urban design guidelines administered by an appropriate City-wide body. The duties of such an agency should include establishment of standards for historic, cultural, and aesthetic values.

#### D. STANDARDS

Standards for conservation vary widely in the minds of different individuals and groups. They are uniquely related to disparate human values. The population's attitudes range between the extremes of "avid conservationists" and "avid anti-conservationists." Those on one side of the center position would claim to favor "man" over "nature," that man is more important than plants and animals. This is often translated into physical comforts and material prosperity for the present generation. Those on the other side of the center position would place man below nature--that plants and animals come first and man second in the satisfaction of needs.

Those non-extremists who would tend toward the center position would place "man" within "nature," that man must live in harmony with his physical and cultural environment. This point of view emphasizes the importance of a healthy relationship and respect between man and nature for the ultimate survival of the human race as a species. The point is made that man is in the master list of species, and that if he cannot preserve the other species, he will not be able to preserve himself.

A common range of standards for development and implementation of the Conservation Element would fall in somewhat the following order: Human survival, human health, animal survival, plant survival, climate preservation, human comfort, and human enjoyment. Standards exist within State and Federal agencies for acceptable levels of air and water quality in the interests of assuring human health and plant and animal survival. Standards are lacking in respect to human comfort and enjoyment.

The general term: "quality of life," has never been quantified in a comprehensive manner. This is an emerging field. Inclusion of a definitive list of standards for conservation in Redwood City will await a future review and update of the General Plan.

#### E. PROPOSALS

To effectively implement the goals, principles, and standards of



the Conservation Element, the City will require continued enforcement of existing regulatory measures at a high level. It should also encourage research on the part of City government and citizen groups for ways and means of creating more effective programs to conserve and beneficially develop its resources. Out of such research may come identification of new legislation needed at City, County, or State levels. Many of these conservation-oriented activities are being undertaken by the City, its businesses and industries, and its citizens, and more will likely be undertaken as their level of environmental awareness increases.

Not all conservation programs undertaken by the City will be dependent upon governmental funding sources to implement them. Many will be funded as a part of other programs: educational in nature or through enactment of appropriate development regulations to be accomplished by private action. Many, however, will require funding regardless of whether it is obtained from local or external agencies. Specific proposals include:

1. Conserve open space by the purchase of land.
2. Develop new controls in the Zoning Ordinance which will limit areas of development to those uses which they can support.
3. Limit development in the hills and bayfront which may have a detrimental effect on those areas.
4. Conserve energy through the development of recycling centers at various locations in the City that will not have an adverse impact on the environment.
5. Continue membership in regional agencies which are working with programs for a better environment.
6. Provide a program for the rehabilitation and preservation of historic and cultural sites which are significant to the community.
7. Develop a grading ordinance for hillside development.
8. Conserve potable water supplies by not permitting the use of lands adjacent to these supplies for development, recreation, or other purposes.
9. Study the future disposition of salt ponds which are no longer in salt production.
10. Develop a system of erosion and pollution controls along the banks of creeks and waterways.



11. Develop a new sewage treatment plant to reduce pollution of the Bay.

## F. ENVIRONMENTAL ASSESSMENT

The Conservation Element of the General Plan is a document which in itself reduces the negative impacts on the environment. It provides for the continued maintenance of open space, flora, fauna, and the preservation of other natural resources. Through the Conservation Element, the physical changes and the alternatives to existing ecological systems can be changed with respect to the negative impacts. There are no irreversible changes which are a part of the Conservation Element unless the goals and standards are not met.

### ENVIRONMENTAL ASSESSMENT MATRIX

| PROPOSAL<br>DESIGNATION | Environmental<br>Impact | Unavoidable<br>Adverse<br>Effects | Mitigation<br>Measures | Alternatives | Relationship<br>Between<br>Short-Term<br>& Long-Term<br>Effects | Irreversible<br>Environmental<br>Changes | Growth<br>Inducing<br>Impact |
|-------------------------|-------------------------|-----------------------------------|------------------------|--------------|-----------------------------------------------------------------|------------------------------------------|------------------------------|
| E-1                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-2                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-3                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-4                     | ●                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-5                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-6                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-7                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-8                     | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-9                     | ●                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-10                    | ○                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |
| E-11                    | ●                       | —                                 | —                      | N            | —                                                               | —                                        | —                            |

KEY:

|   |                |   |                                               |
|---|----------------|---|-----------------------------------------------|
| ○ | No Impact      | ● | Possible Significant Environmental impact     |
| ● | Minor Impact   | N | "NO ACTION" is an alternative to the proposal |
| — | Not Applicable |   |                                               |



## G. IMPLEMENTATION

While the Conservation Element should be implemented by the City wherever possible, the factors covered by this element are of such a nature that close integration with programs of other local and regional agencies is required. To effectively implement the goals, principles, and standards, the City will require continued enforcement of existing regulatory measures at a high level. Many of these conservation oriented activities are already being undertaken.

### CONSERVATION ELEMENT PROPOSALS

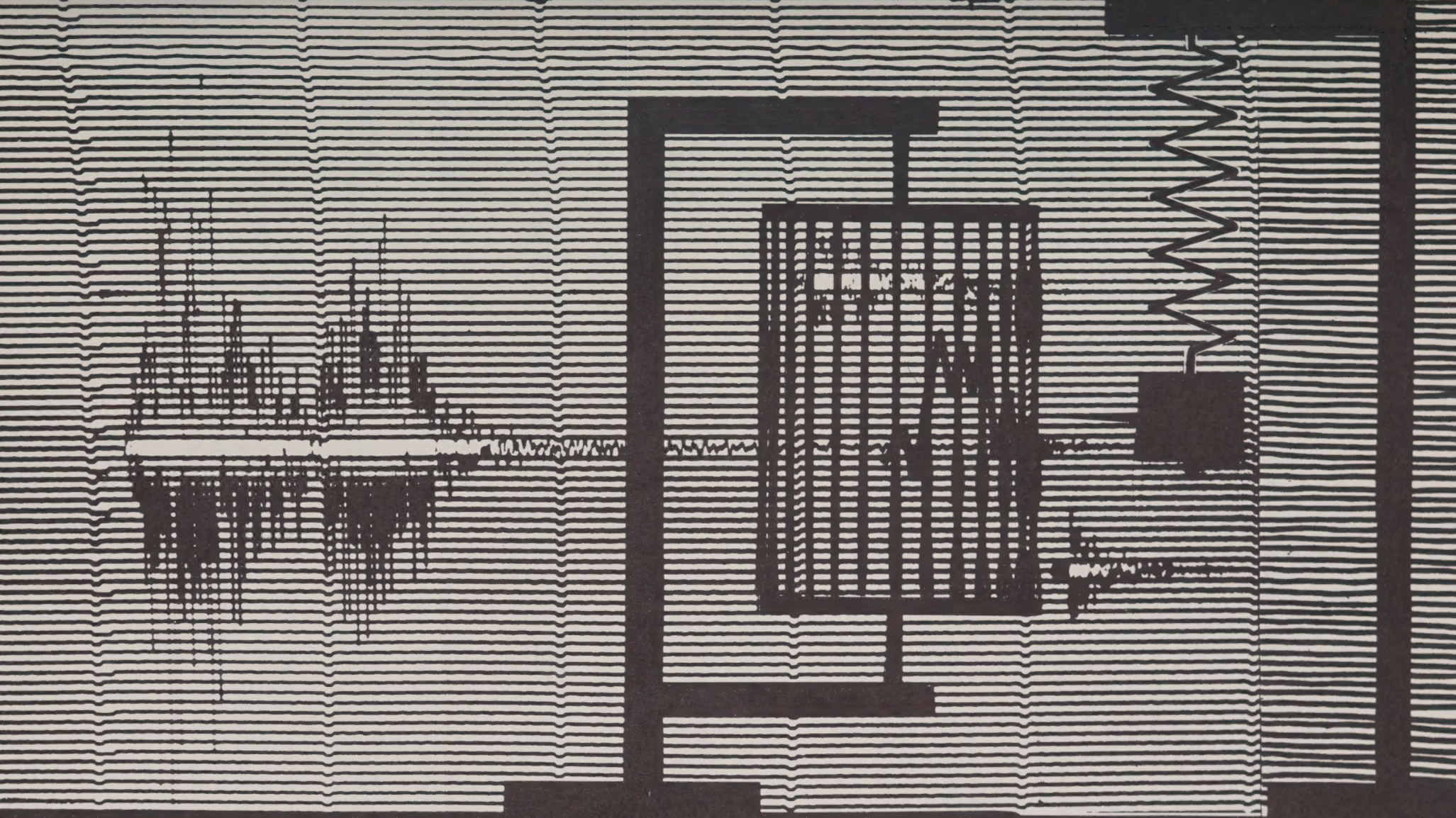
1975- 1980- 1985- 1990- 1995-  
80 85 90 95 2000

| CONSERVATION ELEMENT<br>PROPOSALS                        | 1975-<br>80 | 1980-<br>85 | 1985-<br>90 | 1990-<br>95 | 1995-<br>2000 |
|----------------------------------------------------------|-------------|-------------|-------------|-------------|---------------|
| 1. Purchase land for open space                          | ●           | ●           | ●           | ●           | ●             |
| 2. Develop new zoning ordinance controls                 | ●           | ●           | ●           | ●           | ●             |
| 3. Limit development in hills and bayfront               | ●           | ●           | ●           | ●           | ●             |
| 4. Develop recycling centers                             | ●           |             |             |             |               |
| 5. Continue membership in regional agencies              | ●           | ●           | ●           | ●           | ●             |
| 6. Rehabilitate and preserve historic and cultural sites | ●           | ●           | ●           | ●           | ●             |
| 7. Develop a grading ordinance                           | ●           |             |             |             |               |
| 8. Conserve potable water supplies                       | ●           | ●           | ●           | ●           | ●             |
| 9. Study future disposition of salt ponds                | ●           |             |             |             |               |
| 10. Develop system of erosion and pollution control      | ●           | ●           | ●           | ●           | ●             |
| 11. Develop new sewage treatment plant                   | ●           |             |             |             |               |









# SEISMIC SAFETY 6





## A. PURPOSE

The general purpose of the Redwood City SEISMIC SAFETY ELEMENT is to: (1) identify those areas of the City where special seismic hazard potentials may exist, and which suggest possible modification of future land use patterns in the public interest; (2) identify in a general manner at this time the varying degrees of structural susceptibility to unacceptable levels of damage for type of occupancy or intended use, and suggest measures in addition to those already in effect that will reduce structural hazards and, thus, injuries and loss of lives; and (3) raise the level of public understanding of seismic safety so that they may rationally avoid unnecessary hazards, and may plan public and private strategies for preservation of public safety and for economic recovery.

Earthquakes can cause damage, and the resultant economic losses can run into the millions of dollars. However, even in such severe quakes as the one experienced in Alaska in 1964, the damage was not total. Viewed in its proper perspective, much of the terror can be removed from the subject, and efforts can then be devoted to taking rational measures to enhance the public safety and minimize economic losses in the event of major seismic activity.

## B. EXISTING CONDITIONS

1. Natural Seismic Safety Hazards: Redwood City is more fortunate than many other California cities in that it has several in-depth geological studies that were prepared for significant portions of the City, and one prepared in 1975 for the entire County. Those prepared specially for Redwood City include:
  - a. Report of Seismic Investigation for Redwood City General Improvement District, No. 1-64; Redwood City Seismic Advisory Board et al, September 1965.
  - b. Report of Seismic Advisory Board to the City Council of Redwood City, Redwood City General Improvement District, No. 1-64, Volumes 1 and 2, April 1974.
  - c. Environmental and Planning Geology of the Emerald Lakes/Redwood City Hillside General Plan Area; Earth Science Associates, May 1972.

In addition to data derived from the documents referred to above, this report has drawn upon the Basic Data Contribution series published jointly by the U.S. Department of the Interior Geological Survey and by the U.S. Department of Housing and Urban Development as a part of their San Francisco Bay Region Environment and Resources Planning Study project.



Within the Bay Region there are three major faults, and in or near Redwood City there is one major fault. At least two inferred or theoretical and inactive faults underlie the lower portions of the city, and inactive surface faulting has been identified in the Redwood City hill area. The inferred faults mentioned above pass through the city, while the San Andreas Fault Zone lies close to its western boundaries. Below is a brief description of each of these faults along with an assessment of its potential for impact on Redwood City.

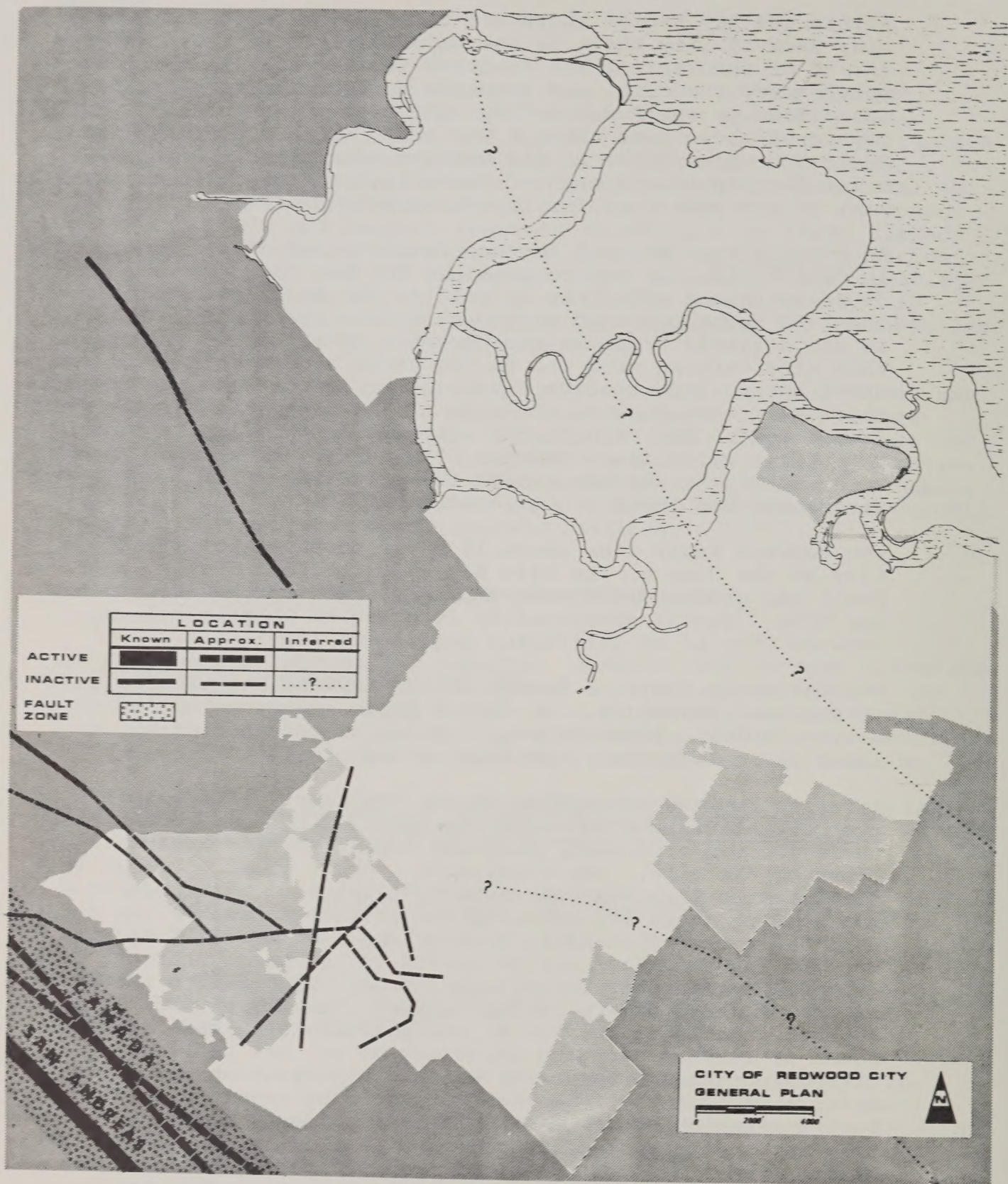
2. Active Faults: The San Andreas Fault is one of the most active in California. It was responsible for the famed San Francisco 1906 earthquake and fires as well as for minor damage during the 1957 quake centered southwest of San Francisco. The fault is not a single break in the basement rock, but is a zone in this area varying from 250 to 500 yards wide within which are minor active and inactive sub-faults. In the Redwood City area this fault zone lies in vicinity of and generally parallel with Cañada Road. Any significant activity in this region along this fault will impact Redwood City. The intensity of impact will largely be dependent upon the magnitude of the quake, its direction, and local ground conditions.

The Hayward Fault lies about 12 miles to the east of Redwood City at the base of the East Bay hills. Historically, this fault has produced the most moderate-sized earthquakes in the Bay Area. Quakes generated by it could be sharply felt in Redwood City if of sufficient magnitude.

The Calaveras Fault, a branch of the Hayward Fault, lies east of the East Bay hills. It is not known to be one of the more active faults. Nevertheless, a quake of moderate magnitude along it would probably be felt in Redwood City.

3. Inferred Faults: According to the Preliminary Geologic Map of the Central Santa Cruz Mountains compiled by E. E. Brabb (1970) there are two apparently inactive faults underlying lower portions of the city. One veers from a point about 750 feet west of El Camino Real near the Atherton line to a point near Community Park where its continuation is less certain. The other such fault runs diagonally through the Leslie Salt Company's Redwood City crystallizer ponds and inferentially through Bair Island. Evidence of these faults comes largely from interpretation of sharp breaks in the derived contours of underlying bedrock. Geologic studies in the hillside area have revealed zones of surface faulting which may or may not represent strands of the nearby active San Andreas Fault system. More definitive geologic investigation would be required to reveal such a relationship. They would be considered to have a potential for undergoing additional surface faulting at some future date. (See "Location of Faults" map on the following page.)





# LOCATION OF FAULTS

SEISMIC SAFETY  
ELEMENT



4. Ground Motion and Displacement: Man-made developments across a fault or within a fault zone could result in a rupture at the surface or a deformation of surface materials. Redwood City, as far as now known, has no potential seismic hazards of this nature. However, Redwood City along with all other Bay Area cities is potentially subject to strong ground motion resulting from an earthquake whose epicenter was located in the region. The intensity of such ground motion would depend upon several factors: the earthquake's intensity (i.e., whether a low 3.0 or a high 8.0 on the Richter scale); location of the epicenter of the quake; and the nature and depth of the local soil cover over the underlying bedrock.

Dames and Moore, consultants, studies for the Seismic Advisory Board, Redwood Shores, revealed that the response of certain soils such as the Bay muds to quakes vary according to the depths of such soils and the magnitude of the quake. The ground accelerations of the smaller quakes would be magnified over the accelerations in the bedrock, whereas ground accelerations of a large quake (7.5 or more on the Richter scale) would be reduced to a value below that of the underlying bedrock. In other words, the unconsolidated soils have a dampening effect on higher magnitude quakes.

5. Inundation of Developed Areas: One seismic hazard of great concern to many California communities is the inundation of lands as the result of dam failures, dike failures, seiches, or tsunamis (see glossary). In Redwood City, the Emerald Lakes/Redwood City Hillside Area study, and the Seismic Advisory Board study for Redwood Shores, addressed these hazards. With respect to dam failure, only the earth-fill dams of the upper and lower Emerald Lakes could potentially fail and cause flooding in downstream areas immediately adjacent to the stream bed. The California Division of Dam Safety has determined these structures to be safe under normal conditions.

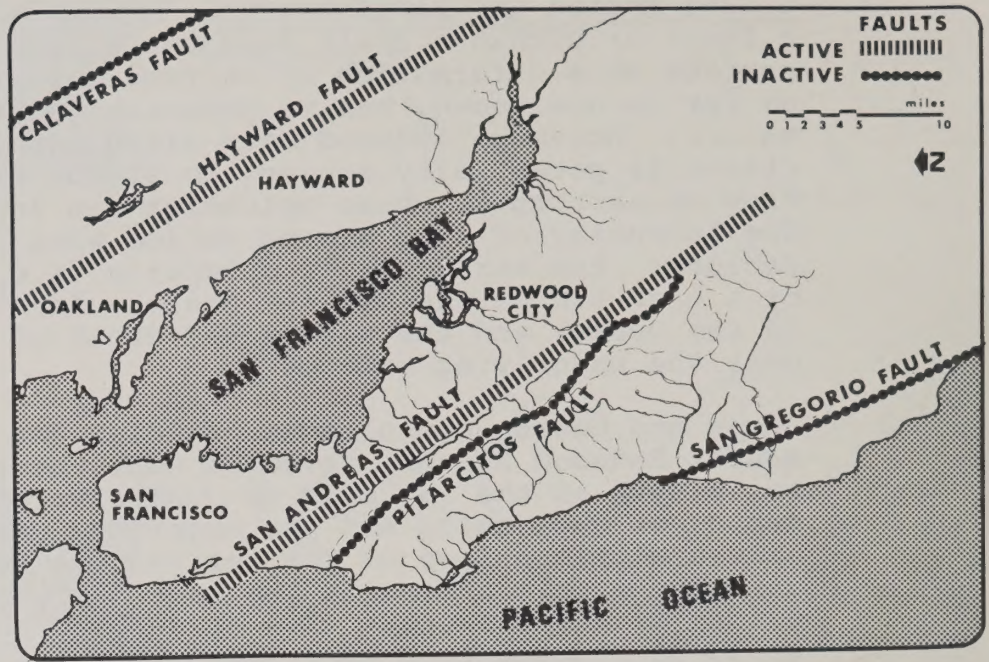
The question of ground stability and the ability of the perimeter dikes to protect the area from high tide waters in the event of a major quake has in the past been a matter of concern. However, in their studies, the Seismic Advisory Board and associated consultants found that, although some subsidence was possible, there would be sufficient protection if the dikes were reconstructed using normal, conservative standards. Dikes around all developed areas have been reconstructed to meet criteria set by the Seismic Advisory Board. Any failure due to liquefaction was found by the Board not to be a factor in the Redwood Shores area. Local authorities believe these conditions apply to Redwood City's other baylands as well. The dikes in the balance of the City's baylands have not been reviewed for safety during such an event.



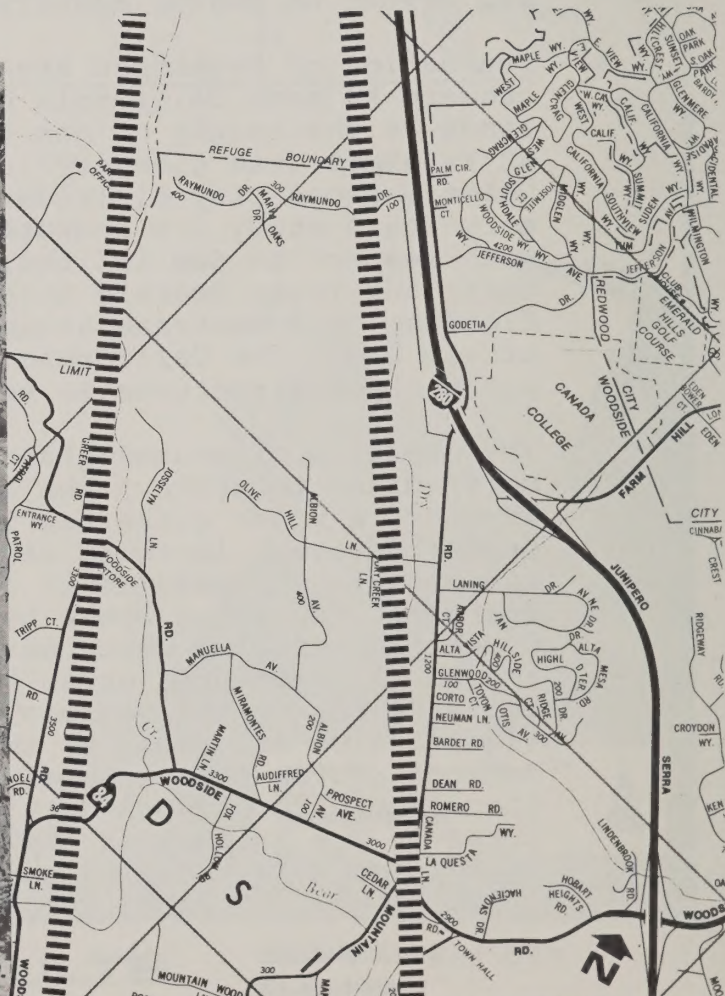
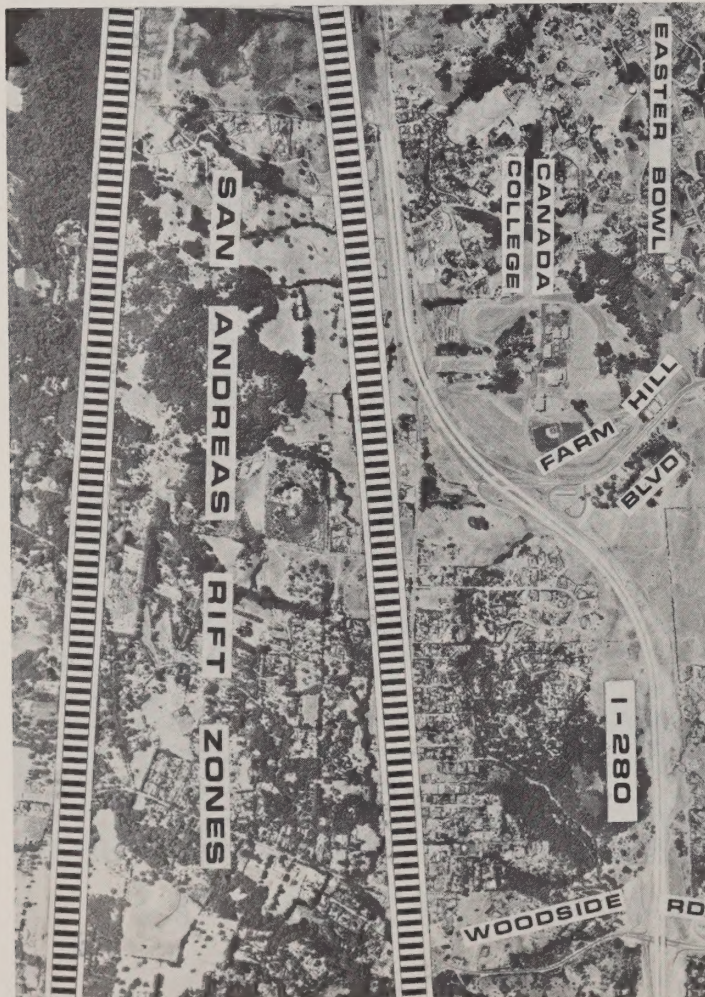
# Seismic Safety

## MAJOR FAULT LINES

SAN FRANCISCO BAY AREA



## REDWOOD CITY AND VICINITY



BASE MAP REPRODUCED BY PERMISSION OF THE CALIFORNIA STATE AUTOMOBILE ASSOCIATION, COPYRIGHT OWNER.



# FAULTING

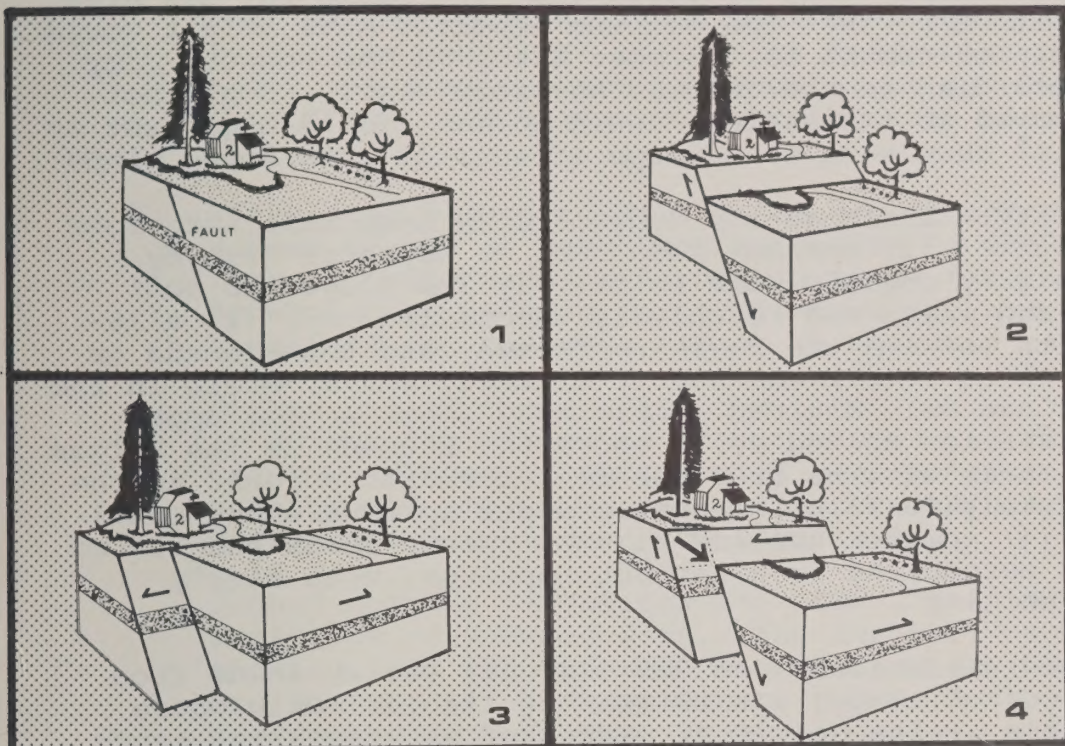
## Ground Motion and Displacement



SAN ANDREAS FAULT RUNS PARALLEL TO CANADA ROAD AS SEEN FROM EASTER BOWL.

### Types of Faults

- 1 Fault Zone Area before fault movement
- 2 Vertical, or Normal fault
- 3 Horizontal, or Lateral fault (San Andreas and related faults all move laterally)
- 4 Combined Vertical and Horizontal faults



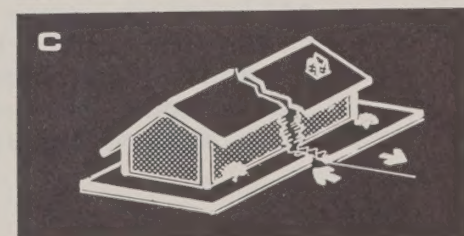
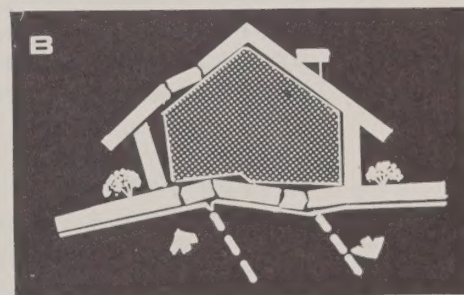
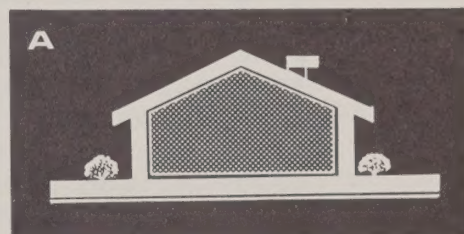
## 1906 Earthquake



AFTERMATH OF 1906 QUAKE  
 • DESTRUCTION OF COUNTY COURT HOUSE  
 • CORNER OF BROADWAY AND MAIN

Earthquakes, such as the 1906 quake, are the results of violent adjustments of a temporarily locked fault

- A Before earthquake
- B Vertical faulting thrusts the ground upward, destroying the foundation above, in turn breaking the vertical supports of the building
- C Lateral faulting shifts the fault to a new position . . . the movement splits the foundation and in large displacements tears the structure





Hazards resulting from seiches and/or tsunamis are rated very improbable. Only the small Emerald Lakes could produce the seiche or sloshing effect, and then only in response to a high magnitude quake whose ground motions were aligned with their central axis. Studies of recent past tsunamis and their influence on San Francisco Bay indicate that the South Bay has great dampening effect so that the maximum expected wave height would be 3.5 feet, not enough to top most dikes in the Redwood City baylands according to the Seismic Advisory Board. Boats not properly moored in the marinas could suffer some damage just as they would if they were to undergo effects of gale force winds.

6. Soil Stability: Soils of the Redwood City area fall into four general groups: (1) the Bay muds east of Bayshore Freeway which are highly organic with relatively low allowable soil pressures, and which are relatively unconsolidated; (2) alluvial deposits between the Bayshore Freeway and the Alameda de las Pulgas which constitute poorly drained, clayey soils in the lower level and well drained stable clay loams in the upper level; (3) shallow upland soils above the Alameda de las Pulgas reflecting their origins from the rock formations found in the area, moderately fertile and stable under optimum slope conditions; and (4) complex shallow to deep upland soils punctuated by frequent serpentine or green outcroppings, with highly variable stability.

Under seismic conditions most Redwood City soils, aside from considerations of slope, are reasonably stable. Only where alluvial soils are underlain by lenses of water-bearing sands or gravels is there chance for subsidence due to liquefaction, i.e., loss of strength under seismic shock conditions. Extensive testing for this factor has been carried out in Redwood Peninsula and Bair Island since 1965, and it can be concluded that soils materials there should remain stable under conditions of strong seismic shaking and that the occurrence of liquefaction is highly unlikely.

7. Slope Stability: In the Emerald Lakes/Redwood City Hillside area, the geological formations with their steep gradients present the greatest potential for landslide under earthquake conditions. (Geologic studies in this area disclosed evidence of large-scale landsliding in the Farm Hill Boulevard area which may have resulted from near-surface shifting of large masses of rock, such as could be triggered by a large magnitude quake.) Above Cordilleras Creek the naturally unstable soil covered slopes have undergone intermittent creep and occasional sliding. Some of this is attributable to man's activities, some is natural. A severe quake in this area would probably precipitate landslide activity in specific areas. Alongside Edgewood Road, above Canyon Hospital, sheared rock zone slopes are visibly unstable and are constantly sliding when saturated with water. Seismic activity almost certainly



would trigger large landslides in the Edgewood Road area that could temporarily block this important access-egress route. (See map on following page.)

Many slide areas in Redwood City are relatively minor in extent. In the vicinity of Farm Hill Boulevard in the Nob Hill Road and Chatham Court areas, slides have resulted in a comparatively limited number of properties being destroyed. With geologic and soils studies undertaken prior to any land alterations in the future, mud slides can remain minor phenomena in Redwood City.

8. Structural Hazards: No significant structures have been built across traces of known active faults in the Redwood City area. Thus the attendant structural hazards for the purpose of the Redwood City Seismic Safety Element are therefore inapplicable. Liquefaction, however, cannot be entirely ruled out in all sections of the City, nor can landslides in the hillside area. Either one of these seismic related activities could potentially affect the integrity of structures and threaten the public safety. Either of these could also potentially cause damage to underground utilities and/or the overturning, displacement, or differential settlement of structures.

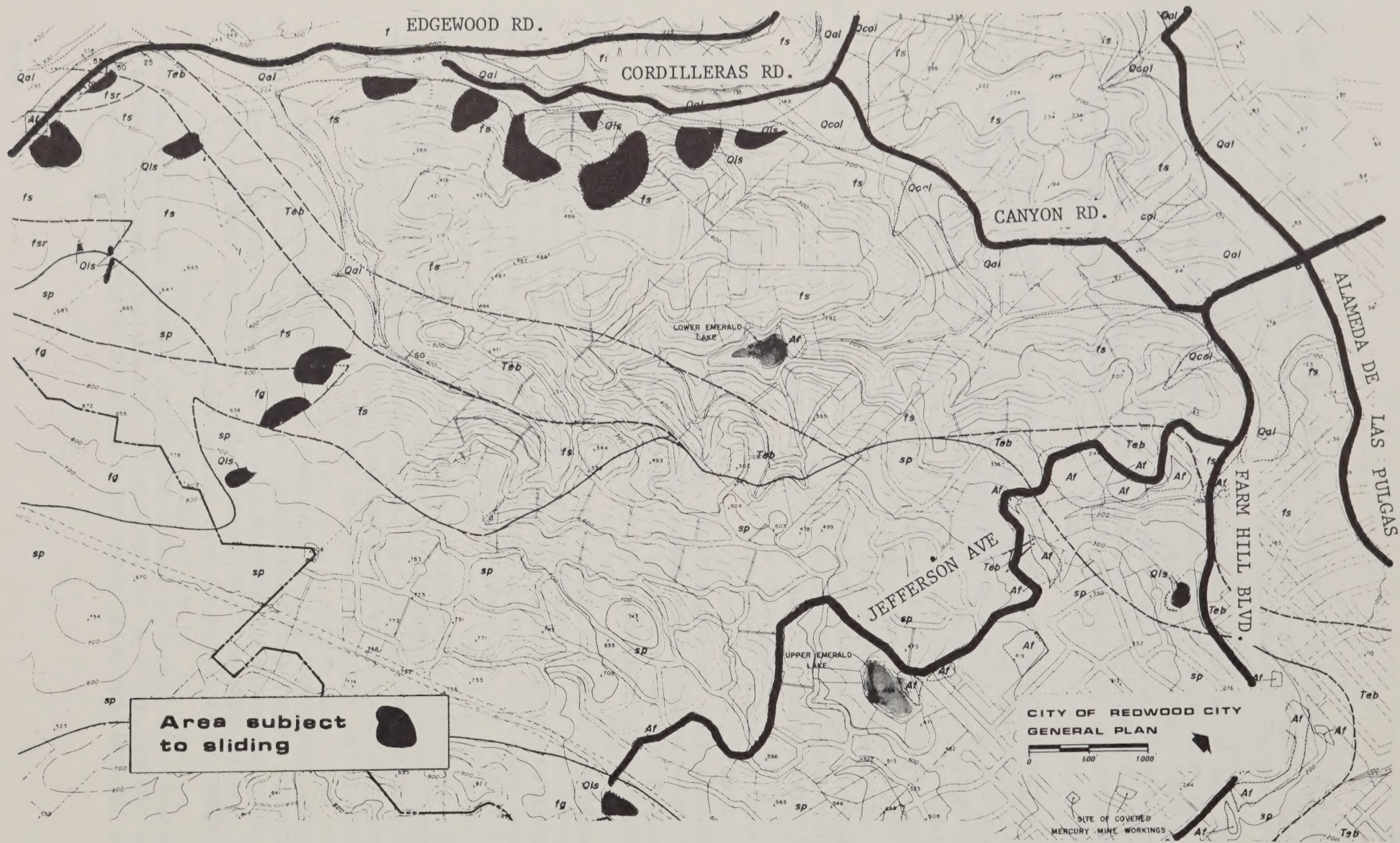
Ground shaking represents the most likely major hazard to buildings in Redwood City. The intensity and nature of that shaking, and the type of construction subjected to these dynamic forces, all play important roles in the end results. The overriding concern here is public safety and the optimum preservation of the integrity of structures.

Some general statements can be made concerning building behavior during an earthquake. Generally speaking low-rise wood-frame structures built to the requirements of the 1933 or later editions of the Uniform Building Code could be expected to perform fairly well during a moderate quake, and many would survive in a large one. The same cannot be said for single-story, unreinforced masonry buildings. Their reaction to a quake would be generally poor, with collapse a possibility. Medium-rise buildings of unreinforced construction would respond even more poorly, with failure almost a certainty in a large quake (Richter 7.0 and over).

A very important factor related to satisfactory building performance in an earthquake is how well a particular building is tied or connected together. A good design, poorly tied together, would not perform as well as a mediocre design, well tied together, all other things being equal.

Redwood City has its share of older, poorly inter-connected structures, most of which are in its older commercial area. This is particularly true of old solid masonry buildings such





## LOCATION OF SIGNIFICANT LAND SLIDE DEPOSITS

SEISMIC SAFETY  
ELEMENT



as those on Main Street and Broadway. They would be unlikely to survive a major earthquake without serious impairment of their structural safety.

ESTIMATED LOSSES IN PERCENT FOR WOOD-FRAME  
SINGLE-FAMILY DWELLINGS AND LIGHT INDUSTRIAL CONSTRUCTION

|                                  | Modified Mercalli Intensity |     |      |      |      |      |
|----------------------------------|-----------------------------|-----|------|------|------|------|
|                                  | VI                          | VII | VIII | IX   | X    | XI   |
| <u>Dwellings</u>                 | (Median - 50:50 Chance)     |     |      |      |      |      |
| All (mostly one story)           | 0.2                         | 0.6 | 1.4  | 3.3  | 7.7  | 18.0 |
| Pre-1940                         | 0.4                         | 0.9 | 2.1  | 5.0  | 12.0 | 29.0 |
| Two story                        | 0.6                         | 1.5 | 3.6  | 8.7  | 21.0 | 48.0 |
| One and two story<br>split level | 0.9                         | 2.2 | 5.2  | 12.7 | 29.0 | 70.0 |
| Light industrial                 | 1.5                         | 3.3 | 7.2  | 16.0 | 36.0 | 80.0 |

NOTE: On bay mud with lots of glass and few partitions--move up one step in the scale.

One-story, good construction, firm ground, lots of partitions--move down one step in the scale.

(Source: San Mateo County Seismic Safety Element Study, 1975.)

9. Seismic Disaster Potentials: The term "seismic disaster," as used in this element, means significant and widespread destruction of structures and their supportive infra-structure as the result of the effects of an earthquake. A "disaster" definition does not necessarily imply casualties but means that the effects of a seismic disturbance has seriously disrupted normal life and economic support systems.

For example, if a large quake resulted in severe ground motion in the central portions of the City, it is conceivable that underground utilities would be broken in numerous locations, communications in some areas disrupted, and the streets filled with rubble where existing adjacent buildings are the older, unreinforced masonry type. Under some circumstances certain types of ground motion could destroy various highway structures along the Bayshore Freeway or Woodside Road since most of them antedate experience gained by structural engineers in the recent San Fernando earthquake.

10. State of Preparedness for Seismic Disaster: The County of San Mateo and 19 of its cities comprise the San Mateo Operational Area Civil Defense and Disaster Organization. This organization works with State and Federal counterparts and is head-



quartered in the basement of the new Hall of Justice and Records Building in Redwood City. Its operational plan outlines the roles of the County and the several cities in the event of a natural disaster and provides the necessary coordination, leadership, and area-wide communications.

The City of Redwood City has a complementary Emergency Operations Plan which was last revised in December, 1972. The Fire Department has an "Emergency Plan--Fire Department Annex" last revised in January, 1973. The Police Department has a "Disaster Plan" dated May, 1967. At present a major shortcoming appears to be that plans are not coordinated with one another. The plans are not kept current which would be essential if they were to prove useful in the event of a natural disaster such as an earthquake.

The Redwood City Elementary School and the Sequoia Union High School Districts have disaster contingency plans for several types of disasters including earthquakes. The plans for each facility are prepared by its administration and reviewed by the respective central administrations.

So far as it is now known the general public has undertaken varying degrees of preparedness, or has only slight knowledge of what to do in the event of a severe quake. Since significant seismic activity or natural disasters are infrequent in the Redwood City area, it is probable that their level of preparedness is below optimum. At this time, no plan for seismic disaster recovery exists in Redwood City. Such a plan should be part of any seismic safety program.

### C. GOALS

1. Goals: The goals of the Seismic Safety Element are to:
  - a. Delineate seismic risk zones more precisely, giving weight to frequency of seismic activity and type of land uses and building occupancies for the enhancement of public safety.
  - b. Identify structural types and land uses highly sensitive to earthquake activity, and abate or modify them to achieve acceptable levels of risk, especially those uses and structures critical in emergency situations and/or essential for vital public services.
  - c. Improve the community capability to respond promptly, efficiently, and effectively in the event of a major earthquake.



- d. Upgrade the Uniform Building Code and other codes above their existing advanced levels as the geotechnical state-of-the-art is improved.
  - e. Inform the public what can be done to reduce risks from seismic events to persons and property.
  - f. Expeditiously incorporate improved risk analysis techniques in this element to continuously enhance public safety.
2. Principles: The following principles are intended to assist in the achievement of the goals and purposes of this element:
- a. Promote the public safety and welfare by making appropriate modifications to existing zoning regulations to apply special combining district regulations in identified high seismic risk areas.
  - b. Promote a higher degree of public safety and welfare through promulgation of standards and regulations governing the development of land which incorporate the latest state-of-the-art knowledge of geotechnical phenomena, which encourage economically feasible mitigation measures.
  - c. Amend the Uniform Building Code, as frequently as may be prudent, to incorporate into its tables lateral force shear values to be applied to new and modified existing construction.
  - d. Encourage coordination of specific application of seismic risk analysis with City development policy.
  - e. Review and update, as needed, the City's disaster response plans in coordination with County's natural disaster preparedness plan, and implement the mutual aid features of such a plan.
  - f. Encourage and participate in research on the relationship between geologic conditions and the risks associated with earthquakes.
  - g. Promote improved interjurisdictional cooperation and communication regarding disaster or emergency plans of San Mateo County, and the seismic safety of such features as dams, reservoirs, and highway structures.

#### D. STANDARDS

In California, as well as in Redwood City, there are few existing standards for risk reduction in the area of seismic and other geo-



technical hazards. Standards presently existing are contained in such codes and ordinances as the Field Act (applied to schools), Chapter 70 of the Uniform Building Code, the Zoning Ordinance, and the Subdivision Ordinance, among others. It may be anticipated that additional standards will be adopted indirectly as a result of the proposals of this element, and as a result of the community's more precise determination of the amount of risks it will deem "acceptable."

1. Criteria for Acceptable Risk Levels: As used in this context, "risk" can be defined as the chance of damage to material things or injury to persons occurring over some period of time. By identifying risks associated with any proposed or existing project, program, or structure, and by comparing them with risks associated with alternative approaches, decisions can be made.

The California Council on Intergovernmental Relations has advanced the concept of acceptable, unacceptable, and avoidable risks. The Council defined each of these as follows:

- a. Acceptable Risk: The level of risk below which no specific action by local government is deemed necessary, other than making the risk known.
- b. Unacceptable Risk: The level of risk above which specific action by local government is deemed necessary to protect life and property.
- c. Avoidable Risk: A level of risk which should not have to be taken, because the individual or public goals can be achieved at the same or less total "cost" by other means without taking that degree of risk.

Determination of what constitutes an acceptable, an unacceptable, and an avoidable risk is highly subjective, and is dependent not only on governmental perception of risk, but also the community's perception as a whole.

2. Nature of Risk Taking: In the analysis of risks emanating from probable seismic events, certain important aspects should be noted:
  - a. Minimizing risks often results in higher construction costs. What is finally decided will be a balance between costs involved and levels of risk desired or acceptable to the public.
  - b. Risk is a part of everyday life, as all activities have some risk associated with them. No alternatives are without some risk; e.g., bicycles go slower than autos, so the risk of being badly hurt hitting something should be low,



and automobiles as an alternate transport form go faster and thus increase the risk of injury; however, bicycles are vulnerable to being struck by motor vehicles, so therefore they present a different kind of risk.

- c. Some risks can be taken willingly; others may occur unwillingly. The unwilling risks should be lower than those willingly taken.
  - d. Some risks are taken unknowingly by the public; others are with full awareness. The public should be aware of the seismic risks it takes in certain situations.
  - e. Risks should be balanced so that those who receive the benefits should also take the risks.
  - f. Risk can be reduced by relocation, demolition, physical alteration, or changing the use of structures.
3. Principal Types of Risk: Redwood City should take into consideration three principal types of seismic risks:
- a. Risks to human life and limb.
  - b. Risks to property or material objects.
  - c. Risks of large scale social and economic disruption.

Most reasonable persons would agree that their order of importance is the same and that, whatever mitigating steps are taken, they should address themselves first to minimizing risk to life and limb. Also, because mitigation measures such as changes in existing regulations or procedures, or development of new regulations require from one to two years to produce, those changes that reduce seismic risk to people must have high priority.

#### E. PROPOSALS

The Seismic Safety Element of the Redwood City General Plan proposes the following actions to be taken to implement the purposes, goals, and principles of this element:

- 1. Redwood City should adopt the concept of the acceptable risk level of policy previously outlined.
- 2. The City should refine identification of high risk areas and structures to the same degree as has been done for geologic factors in the Redwood Shores and the Redwood City hillside areas.



3. Based on the advice of a professional engineering geologist and a structural engineer, the City should implement a Land Use/ Building Type Acceptable Risks Policy and a set of Investigation Standards.
4. In full realization of economic implications, the City should institute a continuing program of evaluating structural safety as it relates to the effects of seismic activity on all high intensity or high occupancy structures.
5. The City's Building Code should be periodically reviewed for its capability of assuring optimum safety of structures when subjected to strong seismic forces.
6. The revised Subdivision Ordinance and a new site development ordinance should reflect the concerns of the Seismic Safety Element by requiring appropriate planning and engineering procedures.
7. The City should review the Zoning Ordinance for amendments that may be required to implement the principles of this element. Consideration should be given to development of a combining district for application in designated high seismic risk areas.
8. The City should review and update its local emergency operations planning in consultation with the Area Disaster Office, the medical emergency coordinating agency, and other affected agencies. Participation in the plan review and preparation process at the local level should include the Fire, Police, Public Works, Building, and Planning Departments, the Office of the City Manager, and the local school districts.
9. The City should require that its disaster plans more fully detail special actions required in case of an earthquake of destructive magnitude, as opposed to floods or other natural disasters.
10. The City should contract with both an engineering geologist and a structural engineering specialist for services requiring their expertise on an as-needed basis.
11. The City should work with the school, community centers, and other agencies in developing a continuing program of dissemination of knowledge about preparedness for seismic events and the facts about various seismic phenomena as they apply to the Redwood City area. The City should also periodically review the progress made in the development and implementation of such a program.
12. The Seismic Safety Element should be kept current through annual review and incorporation of the latest advances in the geotechnical and structural engineering state-of-the-art.



## F. ENVIRONMENTAL ASSESSMENT

The Seismic Safety Element of the General Plan of Redwood City in and of itself will not result in a direct impact on the environment of man or his works in the short term. In the long-term application of the proposals, procedures and preventive measures would enhance the chances of man to successfully deal with adverse physical and economic implications of earthquakes. There are no known environmental effects created by this revised element, thus no need for impact mitigation. There is no practical alternative to the proposed revised Seismic Safety Element inasmuch as it is required by law that it be an element of the General Plan. The identification of seismic hazards or assessment of seismic risks will result in neither irreversible environmental changes nor growth inducing impacts.

## G. IMPLEMENTATION

The matrix on the following page indicates in which five-year period over a span of 25 years it is recommended that the proposals be implemented. Some will, by their nature, be on-going; others are scheduled later awaiting further refinements in the state-of-the-art. Many, however, can and should be implemented as soon as practicable.



**SEISMIC SAFETY ELEMENT  
PROPOSALS**

1975- 1980- 1985- 1990- 1995  
80 85 90 95 2000

|                                                               |                                                                                     |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1. Adopt Acceptable Risk Level Policy                         |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 2. Refine High Risk Area Identification                       |    |    |                                                                                       |                                                                                       |                                                                                       |
| 3. Implement Acceptable Risk Policy/Investigation Standards   |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 4. Institute Program of Structural Safety Evaluation          |    |    |    |                                                                                       |                                                                                       |
| 5. Periodic Review of Building Code                           |    |    |    |    |    |
| 6. Revisions to Subdivision, Site Development Ordinances      |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 7. Revisions to Zoning Ordinance                              |    |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 8. Review and Update Emergency Operations Plan                |   |   |   |   |   |
| 9. Amplify Seismic Disaster Planning                          |  |                                                                                       |                                                                                       |                                                                                       |                                                                                       |
| 10. Contract for Continuing Engineering Geologist Services    |  |  |  |  |  |
| 11. Work with Schools on Seismic Disaster Information Program |  |  |                                                                                       |                                                                                       |                                                                                       |
| 12. Annually Review and Incorporate State-of-the-Art Advances |  |  |  |  |  |



## GLOSSARY OF TERMS

|                                 |                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Active faults:</u>           | Active faults are faults which show evidence of any or all of the following: <ol style="list-style-type: none"><li>1. Topographic or physiographic expressions suggestive of geologically young fault movements.</li><li>2. Fault creep.</li><li>3. Records of surface rupture within or adjacent to the study area in historic time.</li></ol> |
| <u>Alluvium:</u>                | A general term for the sediments laid down in river beds, flood plains, lakes, fans at the foot of the mountain slopes, and estuaries during relatively recent geologic times.                                                                                                                                                                  |
| <u>Bedrock:</u>                 | Any solid rock underlying soil, sand, clay, etc.                                                                                                                                                                                                                                                                                                |
| <u>Colluvium:</u>               | Soil deposited by soil creep, landslides and surface wash.                                                                                                                                                                                                                                                                                      |
| <u>Differential Settlement:</u> | Loss of strength or the loss of water and sand through liquefaction often does not occur evenly over broad areas. Thus the ground settles different amounts in adjacent spots. Can be very destructive to buildings.                                                                                                                            |
| <u>Earthquake:</u>              | Perceptible trembling to violent shaking of the ground, produced by sudden displacement of rocks below and at the earth's surface.                                                                                                                                                                                                              |
| <u>Epicenter:</u>               | The geographical location of the point on the surface of the earth that is vertically above the earthquake focus.                                                                                                                                                                                                                               |
| <u>Fault:</u>                   | An earth fracture or zone of fracture along which the rocks on one side have been displaced in relation to those of the other.                                                                                                                                                                                                                  |
| <u>Fault block:</u>             | A body of rock bounded by one or more faults.                                                                                                                                                                                                                                                                                                   |
| <u>Fault zone:</u>              | A fault instead of being a single clean fracture, may be a zone hundreds or thousands of feet wide; the fault zone consists of numerous interlacing small faults or a confused zone of gouge, breccia or other material.                                                                                                                        |



## GLOSSARY OF TERMS (Continued)

- Geology: The science which treats of the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.
- Ground failure: A situation in which the ground does not hold together such as in landsliding, mud flows, liquefaction and the like.
- Ground lurching: Undulating waves in soft saturated ground that may or may not remain after the earthquake.
- Inactive faults: Identifiable faults which do not meet any of the criteria listed under "active faults."
- Intensity: A nonlinear measure of earthquake size at a particular place as determined by its effect on persons, structures, and earth materials. The principal scale used in the United States today is the Modified Mercalli, 1956 version. Intensity is a measure of effects as contrasted with magnitude which is a measure of energy. They are not the same. (See description of values following, and comparisons with values on the Richter scale.)

### The Modified Mercalli Intensity Scale

- I. Not felt. Marginal and long-period effects of large earthquakes.
- II. Felt by persons at rest, on upper floors, or favorably placed.
- III. Felt indoors. Hanging objects swing. Vibration like passing of light trucks. Duration estimated. May not be recognized as an earthquake.
- IV. Hanging objects swing. Vibration like passing of heavy trucks; or sensation of a jolt like a ball striking the walls. Standing motor cars rock. Windows, dishes, doors rattle. Glasses clink. Crockery clashes. In the upper range of IV wooden walls and frame creak.
- V. Felt outdoors; direction estimated. Sleepers wakened. Liquids disturbed, some spilled. Small unstable objects displaced or upset. Doors swing, close, open. Shutters, pic-



## GLOSSARY OF TERMS (Continued)

tures move. Pendulum clocks stop, start, change rate.

- VI. Felt by all. Many frightened and run outdoors. Persons walk unsteadily. Windows, dishes, glassware broken, knicknacks, books, etc., off shelves. Pictures off walls. Furniture moved or overturned. Weak plaster and masonry D\* cracked. Small bells ring (church, school). Trees, bushes shaken (visibly, or heard to rustle).
- VII. Difficult to stand. Noticed by drivers of motor cars. Hanging objects quiver. Furniture broken. Damage to masonry D, including cracks. Weak chimneys broken at roof line. Fall of plaster, loose bricks, stones, tiles, cornices (also unbraced parapets and architectural ornaments). Some cracks in masonry C. Waves on ponds; water turbid with mud. Small slides and caving in along sand or gravel banks. Large bells ring. Concrete irrigation ditches damaged.
- VIII. Steering of motor cars affected. Damage to masonry C; partial collapse. Some damage to masonry B; none to masonry A. Fall of stucco and some masonry walls. Twisting, fall of chimneys, factory stacks, monuments, towers, elevated tanks. Frame houses moved on foundations if not bolted down; loose panel walls thrown out. Decayed piling broken off. Branches broken from trees. Changes in flow or temperature of springs and wells. Cracks in wet ground and on steep slopes.
- IX. General panic. Masonry D destroyed; masonry B seriously damaged. (General damage to foundations). Frame structures if not bolted, shifted off foundations. Frames racked. Serious damage to reservoirs. Underground pipes broken. Conspicuous cracks in ground. In alluviated areas sand and mud ejected, earthquake fountains, sand craters.
- X. Most masonry and frame structures destroyed with their foundations. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Large landslides. Water thrown on banks to canals, rivers, lakes, etc. Sand and mud shifted horizontally on beaches and flat land. Rails bent slightly.
- XI. Rails bent greatly. Underground pipelines completely out of service.
- XII. Damage nearly total. Large rock masses displaced. Lines of sight and level distorted. Objects thrown into the air.



## GLOSSARY OF TERMS (Continued)

\*Masonry A, B, C, D. To avoid ambiguity of language, the quality of masonry, brick or otherwise, is specified by the following lettering (which has no connection with the conventional Class A, B, C construction).

Masonry A. Good workmanship, mortar, and design; reinforced, especially laterally, and bound together by using steel, concrete, etc.; designed to resist lateral forces.

Masonry B. Good workmanship and mortar; reinforced, but not designed in detail to resist lateral forces.

Masonry C. Ordinary workmanship and mortar; no extreme weaknesses like failing to tie in at corners, but neither reinforced nor designed against horizontal forces.

\*1957 version, from "Elementary Seismology" by C.F. Richter, W.H. Freeman and Co., Inc., 1958.

### Comparison of Magnitude and Intensity

| <u>Richter<br/>Magnitude</u> | <u>Expected Modified Mercalli<br/>Maximum Intensity (at epicenter)</u> |                                                                          |
|------------------------------|------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 2                            | I-II                                                                   | Usually detected only by instruments.                                    |
| 3                            | III                                                                    | Felt indoors.                                                            |
| 4                            | IV-V                                                                   | Felt by most people; slight damage.                                      |
| 5                            | VI-VII                                                                 | Felt by all; many frightened and run outdoors; damage minor to moderate. |
| 6                            | VII-VIII                                                               | Everybody runs outdoors; damage moderate to major.                       |
| 7                            | IX-X                                                                   | Major damage.                                                            |
| 8 +                          | X-XII                                                                  | Total and major damages.                                                 |



## GLOSSARY OF TERMS (Continued)

- Inundation: Flooding caused by water topping a dam or water released by dam, reservoir, levy or other break.
- Liquefaction: A process by which a water saturated sand loses cohesion when shaken. Involved is the collapse of sand grains into intergranular voids which induces an increase in pore pressure and loss of strength. This loss of strength leads to a quick-sand condition in which objects can either sink or float depending on their density.
- Magnitude: The rating of a given earthquake is defined as the logarithm of the maximum amplitude on a seismogram written by an instrument of specified standard type at a distance of 62 miles from the epicenter. It is a measure of the energy released in an earthquake. The zero of the scale is fixed arbitrarily to fit the smallest recorded earthquakes. The scale commonly known as the Richter Scale is open ended but the largest known earthquake magnitudes are near 8-3/4. Because the scale is logarithmic, every upward step of one magnitude unit means a 32 fold increase in energy release. Thus, a magnitude 7 earthquake releases 32 times as much energy as a magnitude 6 earthquake. Magnitude is not the same as intensity. (See comparisons with Modified Mercalli Scale above.)
- Seiche: Earthquake induced wave in lakes or ponds.
- Seismic: Pertaining to an earthquake or earth vibration, including those that are artificially induced.
- Shear: A mode of failure whereby two adjacent parts of a solid slide past one another parallel to the plane of contact. To subject a body to shear, similar to the displacement of the cards in a pack relative to one another.
- Subsidence: A shrinking of a large area of land, usually observed as a shrinkage.
- Tsunami: A sea wave produced by large areal displacements of the ocean bottom, often the result of earthquakes or volcanic activity. Also known as seismic sea waves.









**NOISE**

**7**





## A. PURPOSE

Noise is that portion of acoustical energy that the ear hears and the brain interprets as being annoying, unpleasant, painful, disturbing, or too loud by one or more segments of the population. The overall purposes of the NOISE ELEMENT of the General Plan are to: develop a public awareness of noise as an adverse environmental factor; control or abate objectionable or harmful noises at their source; moderate noises to acceptable and safe levels; increase the livability of all sections of Redwood City; and provide a guide for Redwood City in matters of noise, for its control, prevention, or abatement.

## B. EXISTING CONDITIONS

1. Definition of Terms: Certain technical terms need definition in discussion of noise whether such discussion be of existing noise or potential noise. Noise, or sound is commonly described as a sound pressure (intensity) level. Sound pressure level is the amount of force exerted by sound waves emanating from a noise source. There are four different measures of sound pressure level:
  - a. Decibel--a measure of change in sound intensity (pressure). One decibel is the minimum change in sound intensity (pressure) that can be detected by the human ear.
  - b. A-Weighted Sound Level--the level comparable to human sound perception. The ear does not respond equally to sounds of all frequencies, and is less efficient at low and high frequencies than it is at medium, or speech-range frequencies. Thus, to obtain a single number representing the sound pressure level of a noise containing a wide range of frequencies in a manner approximately that of the ear, it is necessary to reduce, or weight the effects of the low and high frequencies with respect to the medium frequencies. The A-scale sound level is a quantity in decibels read from a standard sound-level meter that is switched to a weighting scale labeled "A." The A-scale weighting discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear in terms of loudness at moderate sound levels. The A-scale sound level measures approximately the relative "noisiness" or "annoyance" of many common sounds.
  - c. Community Noise Equivalent Level (CNEL)--the average daytime noise levels during a 24-hour day, in decibels,



adjusted to an equivalent level to account for the lower tolerance of people to noise during evening and nighttime periods relative to the daytime period.

- d. Ambient Noise Level--composite noise levels, measured in decibels, associated with different types of environments. All general classifications of environment (i.e., rural, urban, urban commercial, urban residential, etc.) have different noise levels associated with them. Ambient noise levels will differ from city to city, and according to different types of land use in such cities. The variations in ambient noise levels can be illustrated by comparing the ambient noise level of a busy commercial street with that of a less frequently traveled residential street.

## 2. Major Noise Sources and Problems:

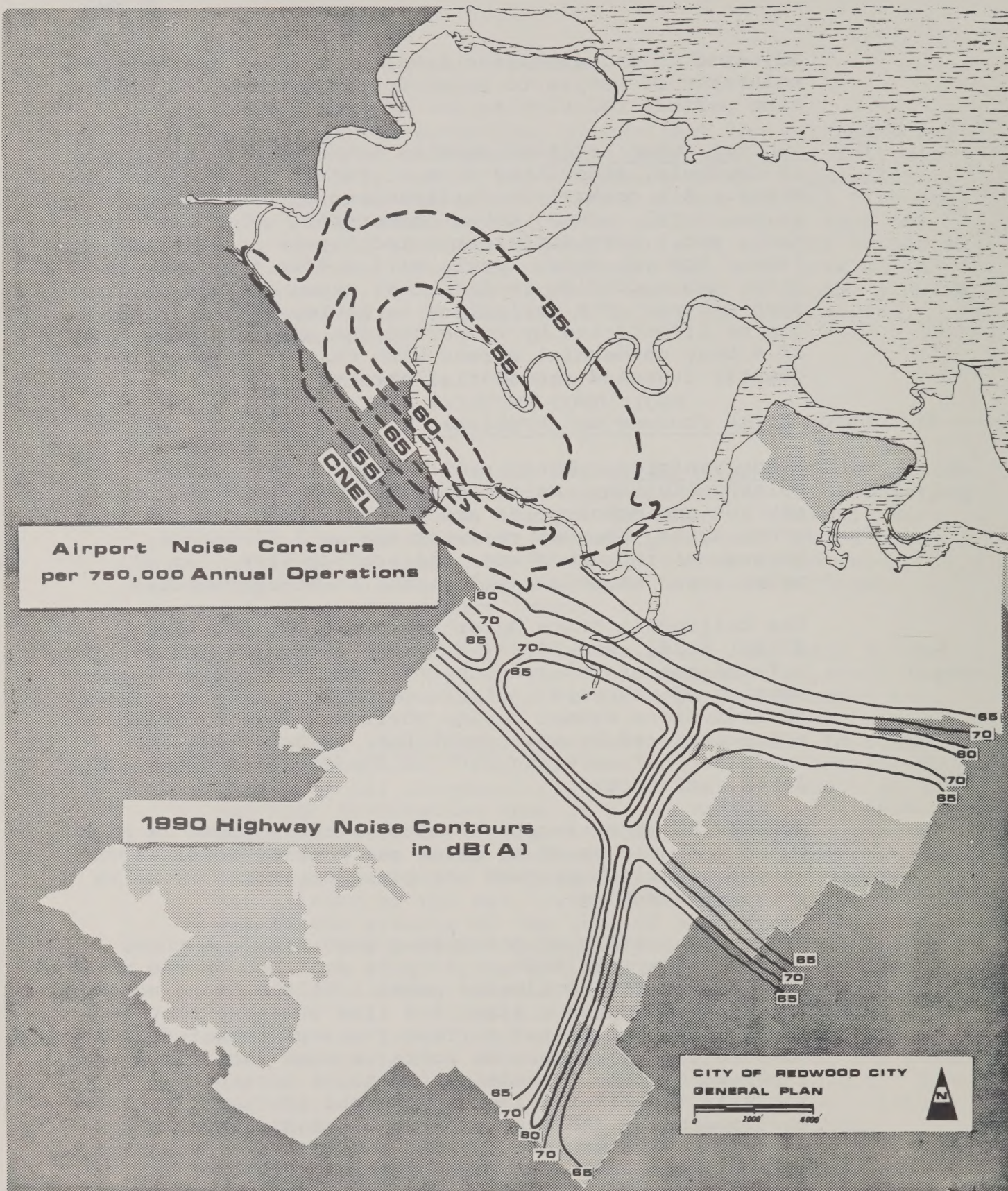
- a. Motor Vehicles. Motor vehicles are a main source of noise pollution. Noise pollution generated by automobiles and motorcycles are a significant problem in urban areas, because roadways are well dispersed throughout the urban area and subject virtually all urban areas to noise pollution from motor vehicles.

The California State Motor Vehicle Code, Sections 27150, 21151, and 24005, sets the standards and assigns enforcement of the code to the State. Because of preemption of vehicular noise control by State laws, local jurisdictions cannot devise their own laws to reduce noise produced by motor vehicles. Enforcement, not inadequacy of existing laws is the greatest problem for local jurisdictions.

One of the major causes of motor vehicle noise is high speed. At speeds of 60 miles per hour on level ground, automobile tires produce the greatest amount of noise above engine noise.

A general picture of noise that emanates from three major roadways in Redwood City is depicted on the noise contour map (see following page). It should be noted that a noise contour line is a line on a map that connects points on a land surface that are impacted at the same level. It should be borne in mind that for every increase of ten decibels on the noise contour map there is ten times increase in sound pressure, or twice the loudness. The contours for State Highways in Redwood City were prepared by the Environmental Planning Branch, Department of Transportation, State of California.





## NOISE CONTOURS

NOISE  
ELEMENT



These contours show the intrusion of noise from the motor vehicle on State Highways passing through the Redwood City area. These contours show areas where speech may be interfered with and a loss in the quality of living is reached. Residential areas within these contours are constantly subjected to noise, and in the noisier areas near the Bayshore Freeway a health hazard exists. The noise from these highways travels much farther than shown by the contours which go only to 65 dB(A), and which do not reflect differences caused by varying sound barriers.

The methods used to determine these contours were based on the federally approved method from the National Cooperative Highway Research Report No. 117 and FHWA Department of Transportation Report No. DOT-TSC-FHWA-72-1. Values are given in decibels (A-scale) exceeded 10 percent of the time. This means that during any 24-hour period, these sound levels will be exceeded 10 percent of the time. Traffic volumes for future traffic predictions are based on 1995 demand values. Attenuation is not considered for buildings, walls, or other structures outside the highway right-of-way. Contours are subject to a range of +3 dB(A).

In addition to the noise problems inherent with all motor vehicles, Redwood City has motor vehicle related noise problems: Excessive noise created by motorcycles, garbage trucks loading trash, compressors of refrigerated trucks parked in residential areas, excessive use of the horn by motorists, excessive speed, squealing tires, and muffler noise.

- b. Airports. Large and small airports have created major noise problems in urbanized areas. As cities have grown they have developed closer to airports; and as the size of aircraft and the number of operations have grown, noise from aircraft has become increasingly annoying to inhabitants of urbanized areas. Within the last several years, improvements have been made in aircraft engine design, and aircraft approach and departure patterns have been altered. These changes have decreased noise level impacts in most areas.

Despite advancing technology, noise levels are still too high to render airports compatible with residential development. Commercial and industrial land uses are generally considered to be more compatible uses, although serious noise and safety hazards exist regardless of the type of land use.



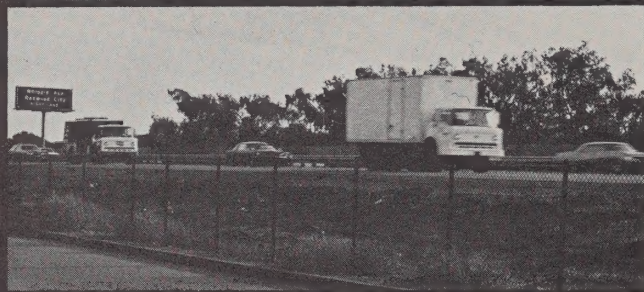
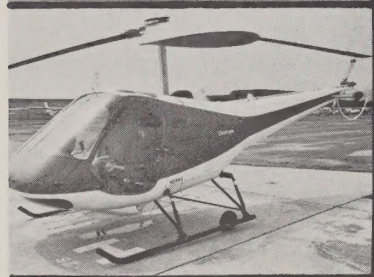
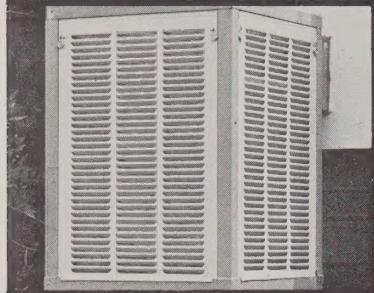
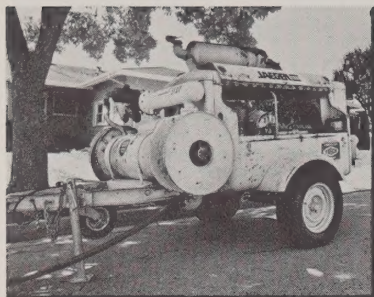
POINT  
SOURCES

AIRPORTS

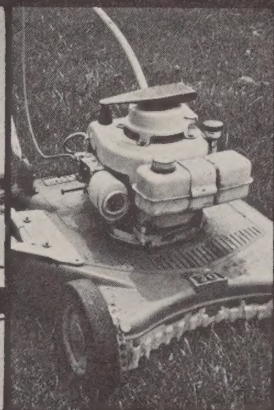
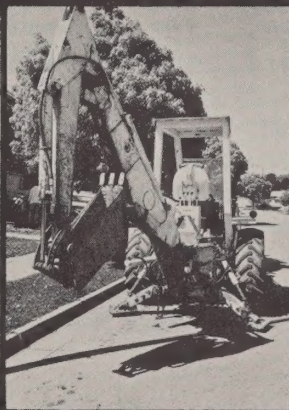
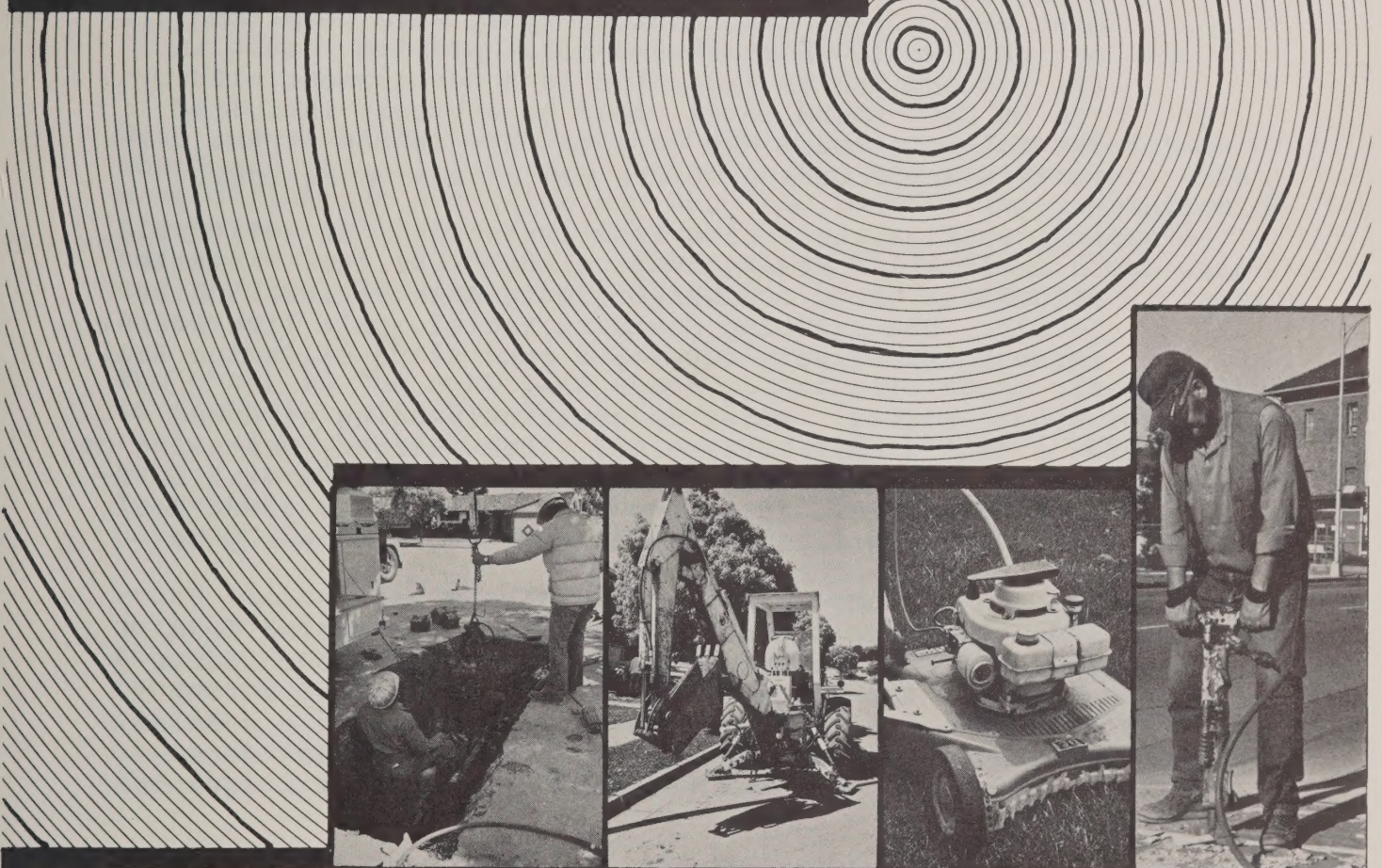
RAILROAD

INDUSTRIES

MOTORVEHICLES









The Redwood Shores area of Redwood City surrounds three sides of the San Mateo County Airport in San Carlos and is impacted by operations of this facility. The San Carlos facility currently has only one runway and 310,000 annual operations. The San Mateo County Regional Planning Committee (RPC), however, has assumed 750,000 annual operations for this airport as a practical maximum projection (based on utilization of dual runways). The RPC staff has recommended that all land covered by the 55 CNEL contour be subject to review by the San Mateo County Airport Land Use Committee (ALUC).

If the RPC's projected maximum of 750,000 annual operations were achieved and if ALUC review of any development within a 55 CNEL contour limit were permitted, not only would an increased noise problem result in the Redwood Shores Area, but land development within the 55 CNEL sound level could be severely inhibited. The Noise Contours Map depicts CNEL levels at the airport in anticipation of 750,000 annual operations.

- c. Rail Facilities. Noise from trains is most noticeable in residential areas and at grade crossings. Whistle signals at grade crossings create high periodic noise levels. The existing Southern Pacific rail line passes through intensively developed land along El Camino Real.

- 3. Point Source Noises: Noise is constantly being produced around us from normal activities. These noises, depending on their frequency and loudness, can be annoying and even harmful. All new building projects tend to create a great deal of noise. Thus normally quiet areas may occasionally be impacted by point source noises.

Some industries may produce a great amount of noise from stamping machines, compressors, and many other such forms of equipment. Within the last few years, federal safety standards have dealt with noise problems to create a safer working environment for employees, but they do not necessarily always reduce noise generated by industrial equipment at its source.

A source of many noise complaints is the "normal" activity of many residential neighborhoods: power lawnmowers, chain saws, high fidelity systems, barking dogs, and loud children and adults. These point source noises contribute to the sometimes already noisy environment. Noise in residential areas may be harmful because it interferes with relaxation and sleep, thus causing emotional stress.

Comprehensive noise surveys have not been undertaken in all



parts of Redwood City, so existing ambient noise levels are not precisely known. They do, however, fall into typical categories as depicted in the Table contained in the section on "Standards" below.

#### C. GOALS

1. Reduce future impact of all types of point source noises.
2. Reduce ambient noise levels in all parts of the City to safe, optimum levels.

#### D. STANDARDS

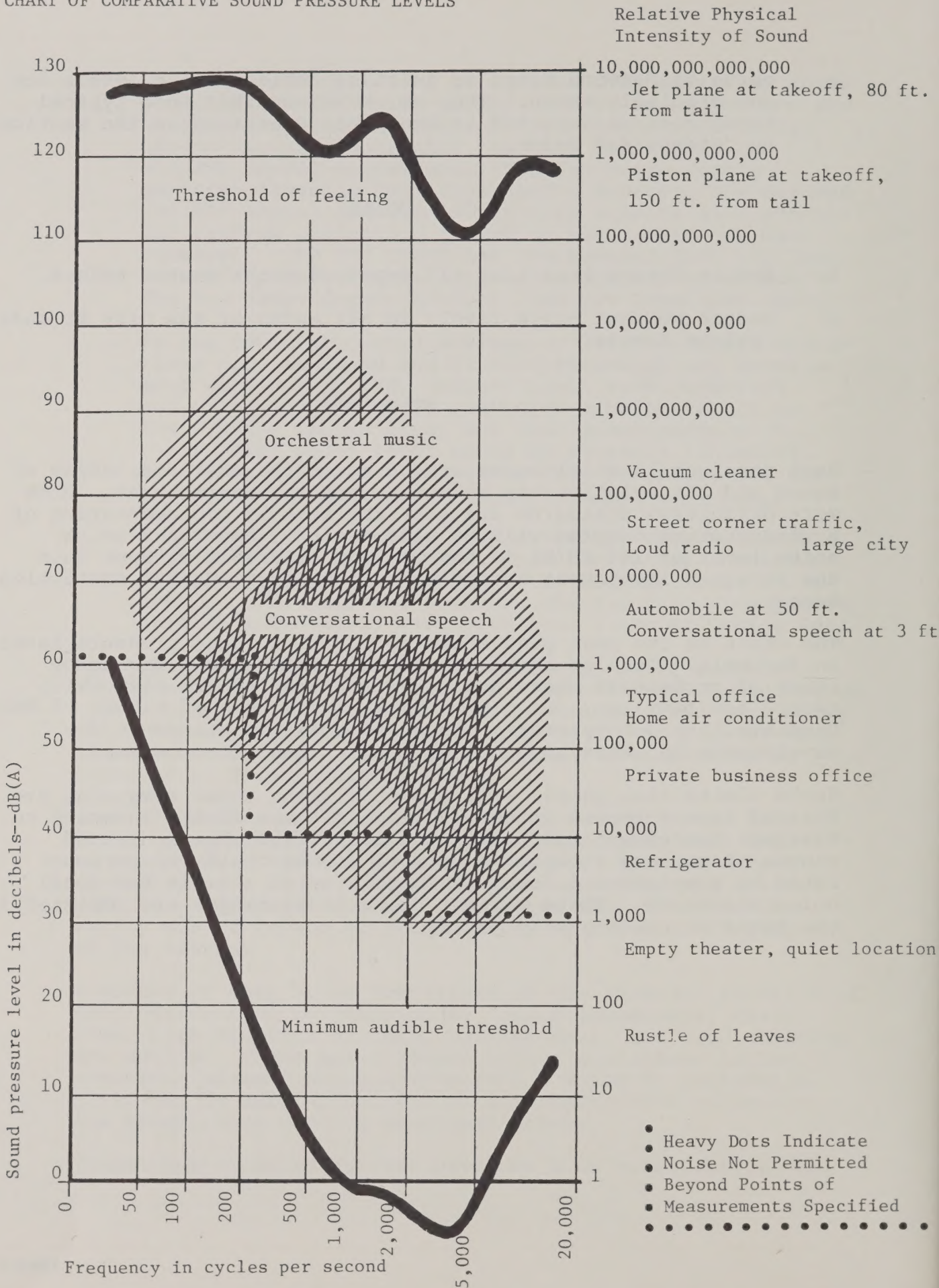
Much research is still being conducted on the characteristics of sound and its relationship to humans and the environment. When more definitive standards are set, the task of implementation of a constructive program will be made easier. Nevertheless, a noise level of 140 dB(A) is the maximum tolerable without pain and physical impairment according to the Environmental Protection Agency.

The chart on the next page shows comparative sound pressure levels in decibels. It also shows the normal loudness and frequency range of orchestral music and conversational speech with which people are familiar. On pages 155-7, a sequence of tables of Noise Compatibility Interpretation suggests possible standards for development in areas impacted by airport generated noises.

Sound limits that people will accept without undue complaint are derived from a report to the 1971 Legislature (Noise Pursuant to Assembly Concurrent Resolution No. 165-1970). The indicated ranges of maximum acceptable decibel levels could, if corroborated by supplemental local testing, provide a basis for local noise standards. These maximum noise level ranges are depicted in the table at the top of page 158.



# CHART OF COMPARATIVE SOUND PRESSURE LEVELS





# NOISE COMPATIBILITY INTERPRETATION

| GENERALIZED LAND USE        | CNEL RANGE      | GENERAL LAND USE RECOMMENDATION                                                                                                                                                                                                              |
|-----------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Residential and Educational | less than 55    | Satisfactory, with little noise impact and requiring no special noise insulation for new construction.                                                                                                                                       |
|                             | 55 to 60        | New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design.                                                             |
|                             | greater than 60 | New construction or development should not be undertaken.                                                                                                                                                                                    |
| Commercial                  | less than 70    | Satisfactory, with little noise impact and requiring no special noise insulation for new construction.                                                                                                                                       |
|                             | 70 to 80        | New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design.                                                             |
|                             | greater than 80 | New construction or development should not be undertaken unless related to airport activities or services. Conventional construction will generally be inadequate, and special noise insulation features should be included in construction. |
| Industrial                  | less than 75    | Satisfactory, with little noise impact and requiring no special noise insulation for new construction.                                                                                                                                       |
|                             | 75 to 85        | New construction or development should be undertaken only after an analysis of noise reduction requirements is made and needed noise insulation features included in the design.                                                             |
|                             | greater than 85 | New construction or development should not be undertaken unless related to airport activities or services. Conventional construction will generally be inadequate, and special noise insulation features should be included in construction. |
| Open                        | less than 75    | Satisfactory, with little noise impact and requiring no special noise insulation for new construction.                                                                                                                                       |
|                             | greater than 75 | Land uses involving concentrations of people (spectator sports and some recreational facilities) or of animals (livestock farming and animal breeding) should generally be avoided.                                                          |



COMPATIBILITY INTERPRETATIONS OF CHART, ON FOLLOWING PAGE

(as it appeared in the report: Interim Land Use Plan,  
San Carlos & Half Moon Bay Airport Plan Area, San Mateo  
County Airport Land Use Commission, November 1972.)

General Land Use Recommendations

1. Satisfactory, with no special noise insulation requirements for new construction.
2. New construction or development should generally be avoided except as possible infill of already developed areas. In such cases, a detailed analysis of noise reduction requirements should be made, and needed noise insulation features should be included in the building design.
3. New construction or development should not be undertaken.
4. New construction or development should not be undertaken unless a detailed analysis of noise reduction requirements is made and needed noise insulation features included in the design.
5. New construction or development should not be undertaken unless directly related to airport-related activities or services. Conventional construction will generally be inadequate and special noise insulation features must be included. A detailed analysis of noise reduction requirements should be made and needed noise insulation features included in the construction or development.
6. A detailed analysis of the noise environment, considering noise from all urban and transportation sources, should be made, and needed noise insulation features and/or special requirements for the sound reinforcement should be included in the basic design.
7. New development should generally be avoided except as possible expansion of already developed areas.

Community Response Predictions

- A. Some noise complaints may occur, and noise may occasionally interfere with some activities.
- B. In developed areas, individuals may complain, perhaps vigorously, and group action is possible.
- C. In developed areas, repeated vigorous complaints and concerted group action might be expected.



# LAND USE COMPATIBILITY CHART FOR AIRCRAFT NOISE

| LAND USE CATEGORY                                                                                                | SLUCM<br>CODE <sup>1</sup>                          | NOISE<br>SENSITIVE<br>CODE <sup>2</sup> | COMPATIBILITY DESCRIPTIONS <sup>3</sup><br>CNEL |     |     |     |     |    |    |    |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------|-------------------------------------------------|-----|-----|-----|-----|----|----|----|
|                                                                                                                  |                                                     |                                         | 55                                              | 60  | 65  | 70  | 75  | 80 | 85 | 90 |
| RESIDENTIAL - SINGLE AND TWO FAMILY HOMES,<br>MOBILE HOMES                                                       | 11 x <sup>4</sup> , 140                             | 1                                       | 1,A                                             | 2,B | 3,B | 3,C | 3,C |    |    |    |
| RESIDENTIAL - MULTIPLE FAMILY APARTMENTS,<br>DORMITORIES, GROUP QUARTERS,<br>ORPHANAGES, RETIREMENT, HOMES ETC.  | 11, 12, 13,<br>19                                   | 2                                       | 1,A                                             | 4,B | 2,B | 3,C | 3,C |    |    |    |
| TRANSIENT LODGING - HOTELS, MOTELS                                                                               | 15                                                  | 3                                       | 1                                               | 4   |     | 5   | 5   |    |    |    |
| SCHOOL CLASSROOMS, LIBRARIES, CHURCHES,<br>HOSPITAL, NURSING HOMES, ETC.                                         | 68, 69x, 651                                        | 1                                       | 1                                               | 4   |     | 3   |     |    |    |    |
| AUDITORIUMS, CONCERT HALLS, OUTDOOR<br>AMPHITHEATERS, MUSIC SHELLS                                               | 711                                                 | 1                                       |                                                 | 6   |     | 3   |     |    |    |    |
| SPORTS ARENAS, OUT-OF-DOOR SPECTATOR SPORTS                                                                      |                                                     | 3                                       |                                                 | 6   |     |     | 3   |    |    |    |
| PLAYGROUNDS, NEIGHBORHOOD PARKS                                                                                  | 761                                                 | 3                                       |                                                 | 1   |     | 2   |     | 3  |    |    |
| GOLF COURSES, RIDING STABLES, WATER-BASED<br>RECREATIONAL AREAS, CEMETERIES                                      | 741x, 743, 744<br>712, 624                          | 4                                       |                                                 | 1   |     | 2   |     | 3  |    |    |
| OFFICE BUILDINGS, PERSONAL, BUSINESS AND<br>PROFESSIONAL SERVICES                                                | 61, 62, 65 <sup>5</sup> ,<br>69, 639                | 3                                       |                                                 | 1   |     | 4   | 2   | 5  |    |    |
| COMMERCIAL - RETAIL, MOVIE THEATERS,<br>RESTAURANTS                                                              | 53, 54, 56, 57<br>59, 581                           | 3                                       |                                                 | 1   |     | 4   |     | 5  |    |    |
| COMMERCIAL - WHOLESALE & SOME RETAIL,<br>INDUSTRIAL/MANUFACTURING, TRANSPORTATION,<br>COMMUNICATIONS & UTILITIES | 51, 52, 55, 63,<br>2_xx <sup>6</sup> , 3_xx<br>4_xx | 5                                       |                                                 | 1   |     |     | 4   | 5  |    |    |
| MANUFACTURING - NOISE SENSITIVE<br>COMMUNICATIONS - NOISE SENSITIVE                                              | 35 <sup>7</sup> , 47 <sup>7</sup>                   | 3                                       |                                                 | 1   |     | 4   | 5   |    |    |    |
| LIVESTOCK FARMING, ANIMAL BREEDING                                                                               | 815-817                                             | 4                                       |                                                 |     |     |     | 7   |    | 3  |    |
| AGRICULTURE (EXCEPT LIVESTOCK FARMING)<br>MINING, FISHING                                                        | 81 NEC <sup>8</sup><br>82, 83, 84,<br>85, 91, 93    | 5                                       |                                                 |     |     | 1   |     |    |    |    |

1. STANDARD LAND USE CODING MANUAL
2. RELATIVE RANKING OF LAND USES WITH RESPECT TO NOISE SENSITIVITY. (1) = MOST, (5) = LEAST.
3. DESCRIPTORS ARE LISTED ON FOLLOWING PAGE
4. "x" REPRESENTS A SLUCM CATEGORY BROADER OR NARROWER THAN, BUT GENERALLY INCLUSIVE OF, THE CATEGORY DESCRIBED
5. EXCLUDING HOSPITALS
6. "xx" SOME EXCEPTIONS MAY OCCUR FOR PARTICULAR OR SPECIALIZED NOISE SENSITIVE ACTIVITIES
7. DEPENDENT UPON SPECIFIC TASK REQUIREMENTS
8. NOT ELSEWHERE CLASSIFIED



**RANGES OF  
MAXIMUM ACCEPTABLE DECIBEL LEVELS**

| LOCATION             | NOISE LEVEL<br>DAY dB(A) | NOISE LEVEL<br>NIGHT dB(A) |
|----------------------|--------------------------|----------------------------|
| Rural Residential    | 35-45                    | 25-35                      |
| Suburban Residential | 40-50                    | 30-35                      |
| Urban Residential    | 45-55                    | 35-45                      |
| Commercial           | 55-65                    | 45-55                      |
| Industrial           | 60-70                    | 50-60                      |

**E. PROPOSALS**

To assist in achieving the basic goals of the Noise Element the following proposals should be considered:

1. Encourage State and Federal legislation regarding noise emission from all types of motor vehicles.
2. Encourage passage of Federal legislation that would require manufacturers of all motor vehicles and their equipment to meet specific noise standards.
3. Encourage State inspection and enforcement of noise standards for all public transit and other motor vehicles.
4. Redesign dips in City streets, which become a noise source when automobiles traveling over them "bottom out," to minimize noise from this source.
5. Maintain enforceable speed limits in the Redwood City area wherever such action will lower noise levels.
6. Consider Federal legislation which will require all airplanes to meet specific noise standards.
7. Oppose expansion or jet operation at the San Mateo County (San Carlos) Airport.
8. Amend the Community Noise Equivalent Level (CNEL) contour map.



9. Prohibit residential development any closer to the San Mateo County (San Carlos) Airport than existing housing shown on the latest adopted land use plan for that area.
10. Request investigation of the necessity of excessively long whistle signals at gate-guarded Southern Pacific crossings.
11. Replace the railroad crossings with quieter, safer materials, such as rubber railroad crossing pads.
12. Adopt a noise control ordinance similar to the California League of Cities Model Noise Ordinance.
13. Enforce actively such Redwood City Noise Ordinance upon its adoption.
14. Require all stationary noise generating sources to meet noise standards when adopted by ordinance.
15. Limit the hours of operation at all noise generation sources wherever practicable, unless an emergency exists.
16. Provide all exterior noise sources (air compressors, pumps, fans, etc.) with noise shielding to bring exterior noise down to such noise levels as may be adopted by ordinance.
17. Encourage making land use decisions that will assist in maintaining acceptable noise levels in the future.
18. Educate citizens in the problems of noise and its effects on health.

#### F. ENVIRONMENTAL ASSESSMENT

The Noise Element is specific in its concerns, but general in its potential application. As such, it applies to all of Redwood City and those areas lying within its Sphere of Influence. The objective of the Noise Element is to provide policy guidelines and standards for the City of Redwood City so as to prevent, moderate, or abate harmful or undesirable noise and its causes.

Noise impinges on man's environment and may, under certain circumstances, have a moderate-to-severe negative impact. The Noise Element, being a general policy and implementation guideline, is deemed to have largely positive environmental characteristics. There are no readily ascertainable adverse environmental effects that would be produced by this element.

Inasmuch as there are no discernable adverse environmental impacts



created by the Noise Element, no mitigation measures are indicated.

An alternative to the proposed actions would be to accept the status quo and to ignore the adverse effects of noise that the element addresses itself to. If the principles and actions proposed by this element are implemented, the long-term effects of the element will enhance the environment by reducing the harmful effects of noise on the human health and safety. In the short range, the proposed element will promote better understanding of problems and concerns and expedite search for solutions. Due to the general nature of this element, there are not expected to be any irreversible environmental changes.

#### G. IMPLEMENTATION

The matrix on the following page indicates, by five-year increments over a span of 25 years, the recommended implementation of the proposals for this element.

Most of the proposals advanced would not require large expenditures of public funds unless public policy indicated involvement in mitigating certain identified noise sources which could properly be said to be a public responsibility. The bulk of the proposals contained in this element would require legislative action followed by enforcement of adopted regulatory measures, or would require expenditures by the private sector to build in noise prevention or control features.

Readily achievable implementation proposals should be carried out in the first five-year period. Other proposals can be spread out over a more extended period. Some of them should be continuing activities of good government as well as good community development.



**NOISE ELEMENT  
PROPOSALS**

1975- 1980- 1985- 1990- 1995-  
80 85 90 95 2000

|                                                                                     |                                     |                                     |                                     |                                     |                                     |
|-------------------------------------------------------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Encourage State and Federal Legislation re: Vehicular Noise Emission             | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| 2. Encourage Federal Vehicular Noise Standards                                      | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| 3. Encourage State Enforcement of Noise Standards for All Vehicles                  |                                     | <input checked="" type="checkbox"/> |                                     |                                     |                                     |
| 4. Eliminate Street Dips                                                            | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |                                     |
| 5. Enforce Speed Limits to Lower Vehicular Noise Levels                             |                                     | <input checked="" type="checkbox"/> |                                     |                                     |                                     |
| 6. Encourage Federal Legislation Compelling Aircraft Noise Standard Compliance      | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| 7. Oppose Expansion and Jet Operations at San Carlos Airport                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |                                     |
| 8. Amend noise contour map                                                          | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| 9. Prohibit Residential Development Closer to San Carlos Airport                    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 10. Request Railroad Whistle Signal Length Investigation                            | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| 11. Install Quieter Railroad Crossing Materials                                     |                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                                     |
| 12. Adopt Redwood City Noise Control Ordinance                                      | <input checked="" type="checkbox"/> |                                     |                                     |                                     |                                     |
| 13. Enforce Redwood City Noise Control Ordinance                                    | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 14. Require Stationary Noise Source Compliance                                      | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 15. Limit Noise Generator Hours of Operation                                        | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 16. Shield Noise Generators to Meet Standards                                       | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 17. Encourage Land Use Decisions That Aid in Maintenance of Acceptable Noise Levels | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 18. Educate Citizens on Noise and its Effect on Health                              | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |









**SCENIC ROADS**

**8**





## A. PURPOSE

The purposes of the Redwood City SCENIC ROADS ELEMENT are to alert the residents of Redwood City to the need to recognize the inherent or potential scenic qualities of many of its existing traffic ways, and to create a set of policies and guidelines which, with recommended implementation proposals, will assist in the designation, development, enhancement, and protection of local trafficways possessing scenic or potential aesthetic qualities.

## B. EXISTING CONDITIONS

Local State Highways include El Camino Real (Route 82), Woodside Road (Route 84), and Bayshore Freeway (Route 101). They are heavily built up and heavily traveled, and presently cannot be considered scenic highways. This does not preclude their becoming scenic routes. Through existing zoning regulations, all new development along these routes must have landscaping. Because it takes several years for landscaping to mature, the true effect will not be seen for some time. Through beautification programs, El Camino Real and Woodside Road particularly will undergo significant change in appearance with added landscaping, a change in sign usage, and control of outdoor advertising.

1. Categories of Scenic Roads: Streets within Redwood City fall into three broad categories:
  - a. Redwood City's existing scenic roads (see Scenic Road System map).
  - b. Recently improved roads.
  - c. Those streets with scenic potential, but in need of improvement.
2. Existing and Potential Scenic Roads: ALAMEDA DE LAS PULGAS. This route begins in Menlo Park at Santa Cruz Avenue and terminates in San Mateo at Crystal Springs Road. Approximately 3.1 miles of this route lies within Redwood City. Running generally along the base of the hills back of Redwood City, this route is predominantly a well maintained residential corridor with average to above average landscaped front yard setbacks of the bordering homes.  
  
EDGEWOOD ROAD. This route extends from El Camino Real to Cañada Road. Although throughout its length it can be considered "scenic," it is from the Alameda de las Pulgas to



Cañada Road that the informal and often native vegetation bordering the highway qualifies it as a scenic road. Views westbound feature lushly forested hills with homes nestled in the trees. Eastbound, the nearby forested hills, the quarry face, fleeting views of the Hoover Tower on the Stanford Campus, the East Bay Hills with a backdrop of Mount Diablo, and the roadside greenery itself are the principal scenic features of Edgewood Road.

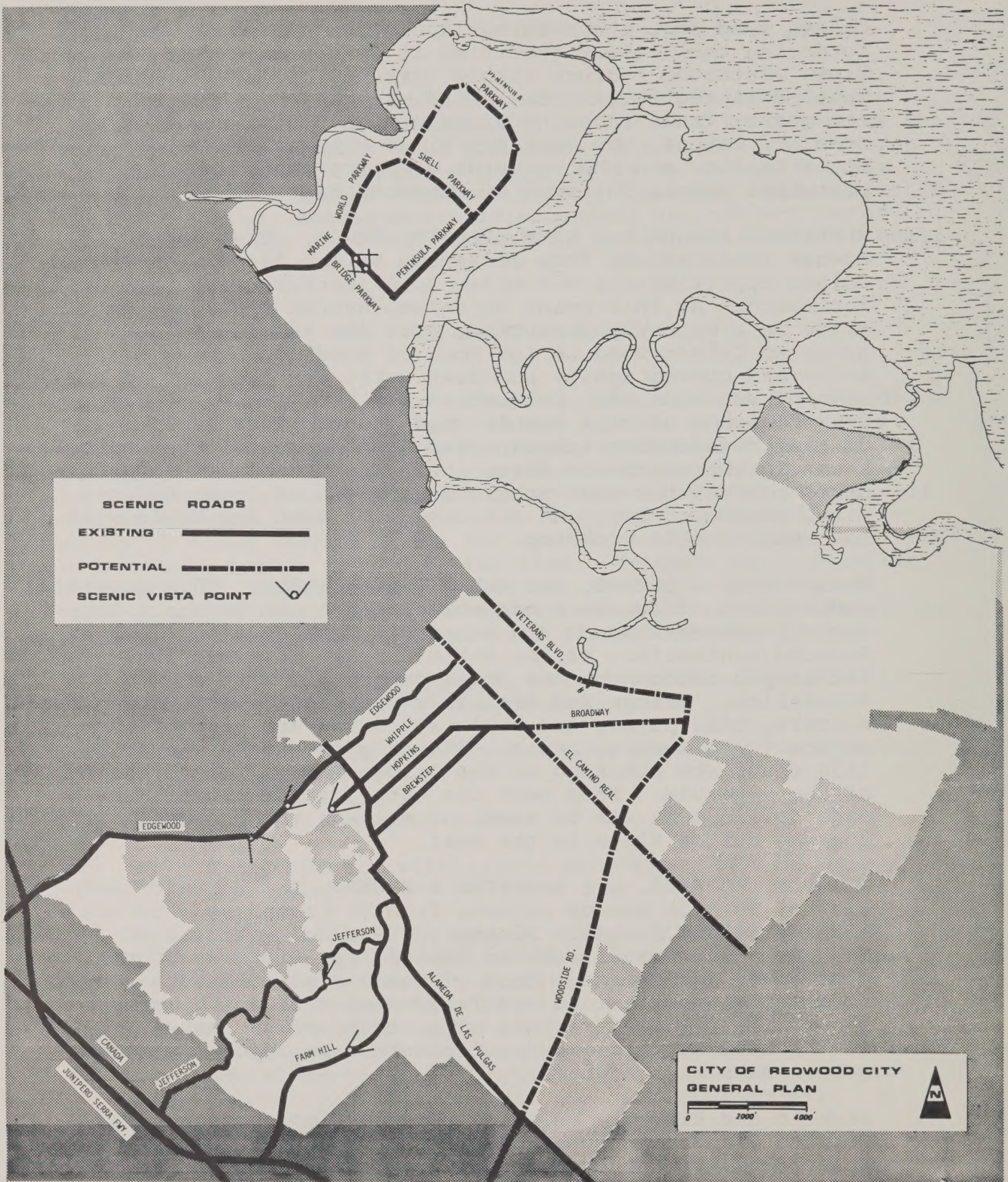
JEFFERSON AVENUE and FARM HILL BOULEVARD. These potential scenic roads extend from Jefferson at the Alameda de las Pulgas approximately 0.2 miles to a juncture with Farm Hill Boulevard. At this point Jefferson Avenue winds up the grade in a westerly direction, over the summit and down grade to Cañada Road in the Town of Woodside. Farm Hill Boulevard curves uphill and down until its juncture in the Town of Woodside with Interstate 280 below Cañada College. Both branches of this scenic road feature landscaped residential development interspersed with extensive open space areas in the westbound direction. Eastbound, both branches offer some of the most spectacular views of lower Redwood City, the South Bay, and the ranges of East Bay Hills with the Mount Diablo backdrop.

MARINE WORLD, BRIDGE, and PENINSULA PARKWAYS. This potential combination of scenic roads commences at the Bayshore Freeway and passes through the presently developed portions of Redwood Peninsula. Marine World Parkway is extensively landscaped throughout its developed length with exotic vegetation. Bridge and Peninsula Parkways feature landscaped borders, bike paths, and walls screening the view of the adjacent residential areas. The only extensive views from this route are obtained on the Bridge Parkway overcrossing of the waterway. From here the water, marshes, and man-made development can be seen, as well as the backdrop of the San Carlos Hills to the west.

WHIPPLE, HOPKINS, and BREWSTER AVENUES. The "scenic" portion of Whipple Avenue extends from El Camino Real to the Alameda de las Pulgas. Similarly "scenic" portions of Hopkins and Brewster Avenues extend from Broadway to the Alameda de las Pulgas. Each of these routes features unusually well-maintained and landscaped residential properties. The one feature that makes these routes exceptional is the noticeable presence of mature vegetation, including native oaks and redwoods.

3. Streets and Highways Needing Aesthetic Improvement: In Redwood City many routes need improvement, but El Camino Real needs it more than most. Poor trafficway design, discordant architecture, garish and chaotic signing, and a



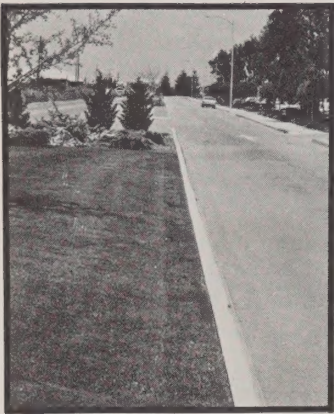
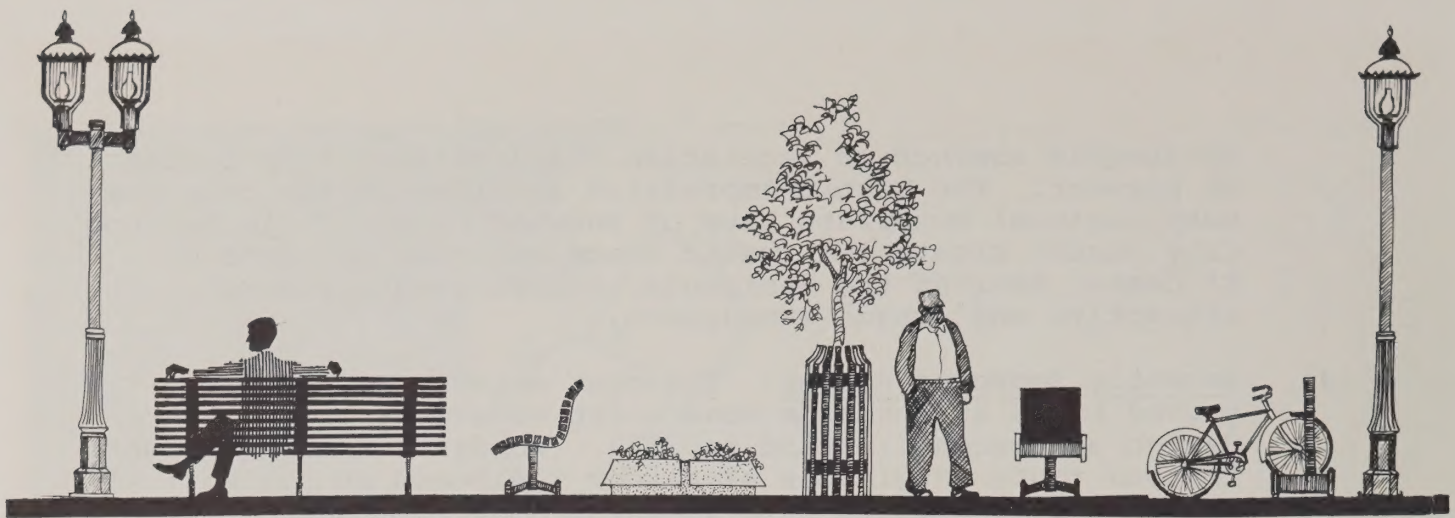




noticeable absence of vegetation characterizes this route at present. The scenic impression it gives is the only one many regional motorists have of Redwood City. While Redwood City cannot create the rustic charm of other sections of El Camino Real on the Peninsula, it can create a more attractive and urbane atmosphere.

4. Recently Improved Routes: The most notable recently improved route is Woodside Road which underwent extensive redesign and reconstruction in 1971. Woodside Road as a continuous route originates as Harbor Boulevard at the Port of Redwood City, changes into Woodside Road just west of Highway 101, and proceeds beyond Redwood City to the Coast. The route is generally characterized by strip commercial development and landscaped median islands. In some places, the widening of the road and the natural quality of the landscaped median islands give the road design a rather awkward relationship with the strip commercial uses along either side of the route. Future development under proper guidance should reduce most of these deficiencies.
5. Special Projects: Special projects intended to fall into the scenic roads category that are underway, or will soon be underway, include the following:
  - a. Veterans Boulevard Project. This project, which is partially funded by Federal funds, includes adding a median and landscaping along its entire length. This median strip will be over ten feet wide and maintained by the City.
  - b. El Camino Real Project. This project is much like that of Woodside Road, described above. Since the roadway cannot feasibly be widened, certain engineering procedures will be used to aid traffic circulation. The project includes providing left-turn and right-turn storage lanes at certain intersections, providing two uninterrupted through lanes in each direction, and adding a landscaped median. This improvement could encourage adjoining property owners to improve their property and add landscaping wherever feasible.
  - c. Broadway Project. Extensive redesign and reconstruction from El Camino Real to Spring Street began in 1974 and is scheduled for early completion. Decreased vehicular emphasis and greatly expanded pedestrian features, plus sensitive attention to design of materials and landscaping, will be the outstanding features of this scenic road now being created.





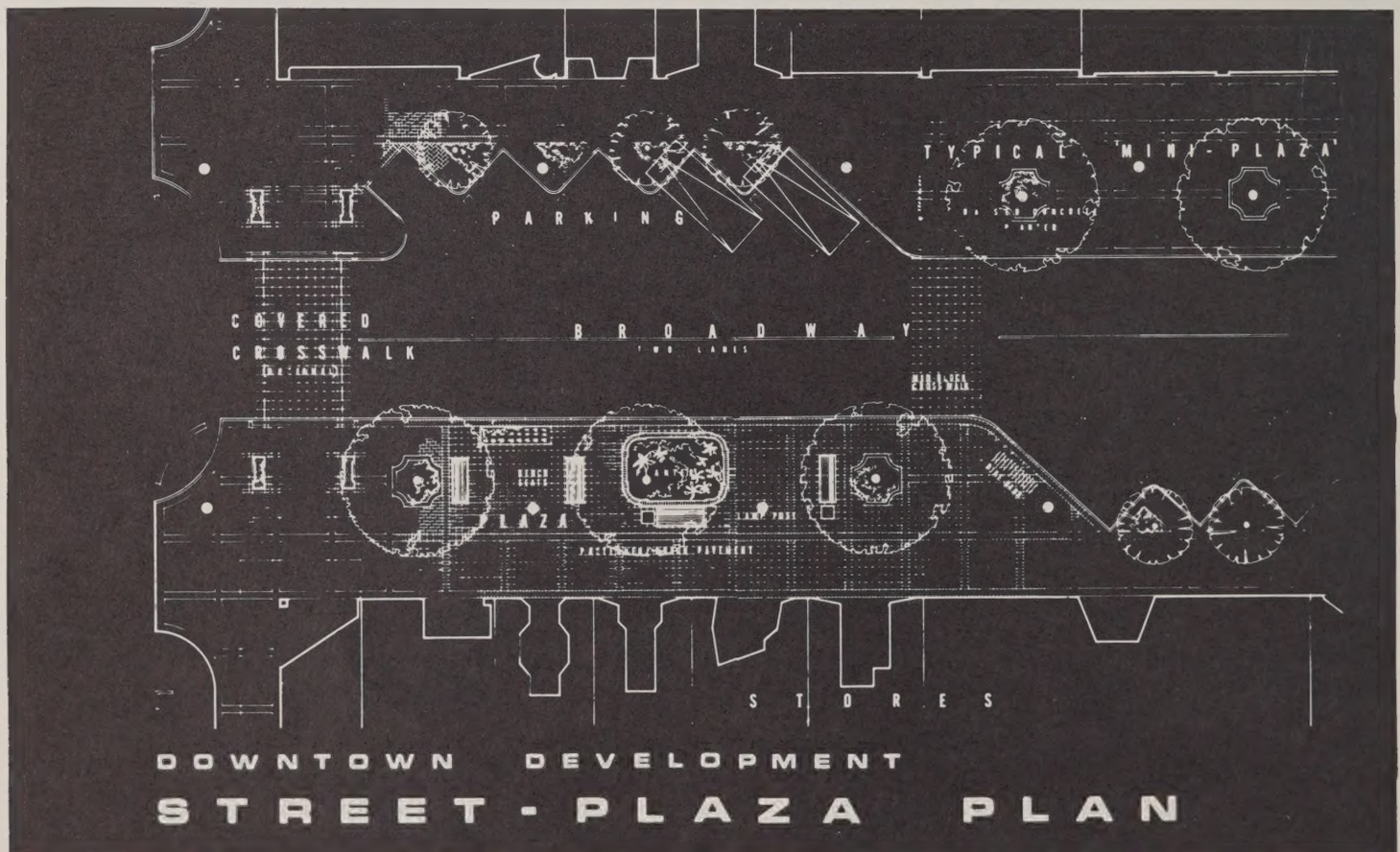
## SCENIC ROADS

### VETERANS BOULEVARD PROJECT

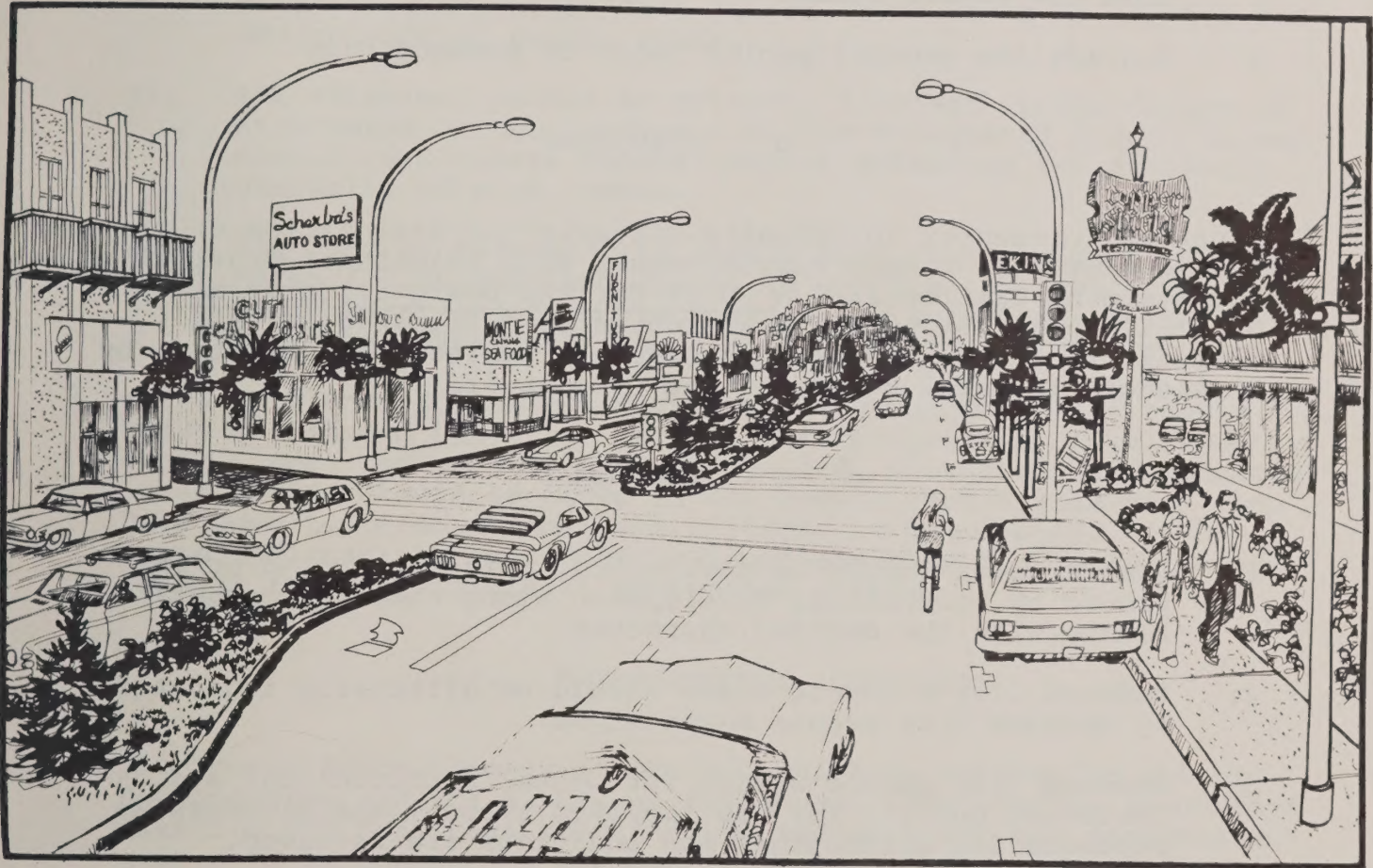
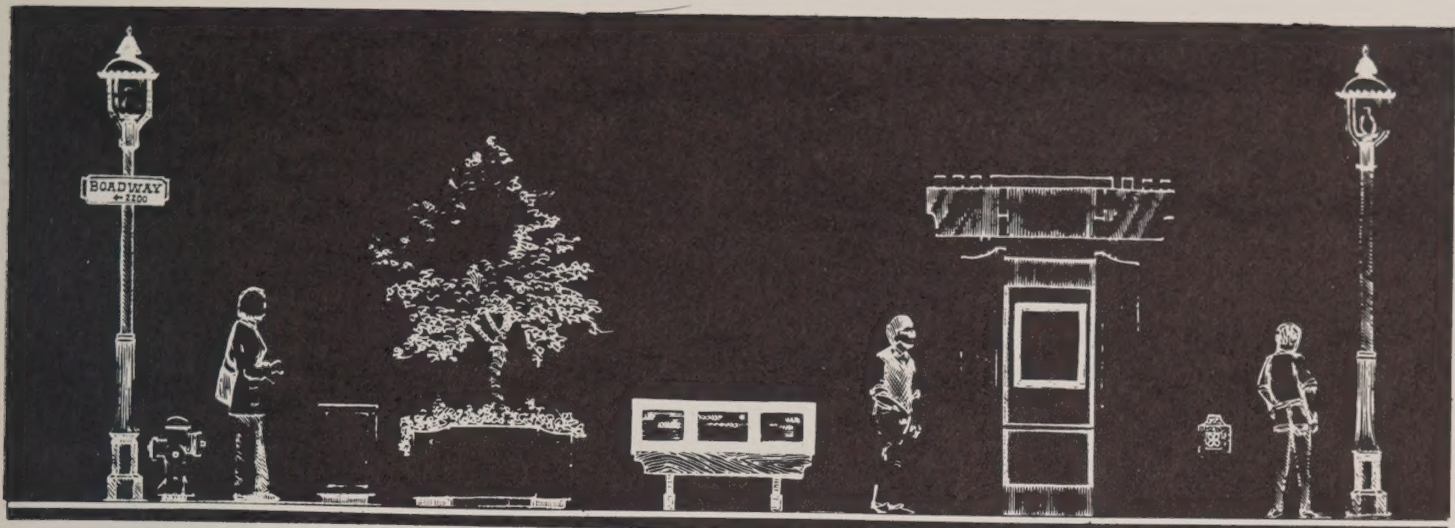
*This project, which is partially financed with Federal funds, includes the completion of a median and landscaping along its entire length*

### BROADWAY PROJECT

*Extensive redesign and reconstruction from El Camino Real to Spring Street, begun in 1974, has decreased vehicular emphasis and expanded pedestrian features*







## EL CAMINO REAL PROJECT

This project represents a major innovation in conversion of old highways . . . the project includes providing left-turn and right-turn storage lanes at certain street intersections, providing two uninterrupted through lanes in each direction, and adding a landscaped median . . . since the roadway cannot feasibly be widened, advanced technology will be used to aid smooth traffic flow . . . the improvement will likely encourage owners to improve their properties, adding landscaping where feasible





### C. GOALS

1. Preserve and enhance the character of existing routes possessing "scenic" qualities.
2. Upgrade all major arterial routes in Redwood City with potentials as "scenic" roads.
3. Heighten public awareness of this existing and potential community resource.
4. Preserve and enhance existing and potential scenic vistas from the scenic roads.
5. Upgrade the general public image of Redwood City.

### D. STANDARDS

There are presently no definite criteria for designation of scenic routes or scenic vistas, other than guidelines provided by the State of California: A Guide for the Designation of an Official Scenic Highway. Most routes so designated in this element are the result of conscientious subjective evaluation by knowledgeable local residents and City staff.

### E. PROPOSALS

1. Scenic roads should be designated, maintained, and/or improved by controlling development along them for compatibility with the desired character.
2. Redwood City's scenic roads should be officially indicated by Redwood City scenic route signs.
3. Redwood City should strive for better architectural and landscape quality for its improved streets and highways as requests for alterations and additions are received.
4. Streets and highways within Redwood City which are in need of scenic improvement should be so designated to encourage a change in scenic quality.
5. Scenic vista points of exceptional merit should be acquired and protected by the City whenever feasible.
6. Scenic easements should be acquired along all designated



routes wherever feasible.

7. Bicycle trails should be designated along scenic corridors wherever feasible, or whenever new roadways are built.
8. Scenic corridor design consideration should incorporate: restricted use of incompatible signs, and undergrounding of utility lines.
9. Consideration should be given to designating a scenic route tour that would encompass and connect all points of interest as well as the existing scenic roads.
10. To be included in a system of "local scenic routes," a route should conform to a set of criteria to be adopted for designation of scenic roads.
11. All entities, public or private, involved in the design of structures or the landscape within designated scenic routes should work toward maintaining or enhancing the aesthetic qualities of such routes.
12. The City of Redwood City should work with the County of San Mateo and neighboring cities to coordinate planning and implementation of scenic roads where such roads border or traverse these jurisdictions.

The Scenic Road System map shows existing and potential scenic roads in Redwood City, all of which are proposed as local scenic roads. Such routes should be designated, protected, and enhanced. Other routes should be added to the scenic road system when they have been improved to meet the criteria to be adopted. Such route designations should be reviewed annually for inclusion or removal from an officially designated system.

#### F. ENVIRONMENTAL ASSESSMENT

The Scenic Roads Element of the General Plan applies to all of Redwood City and its Sphere of Influence. The element identifies existing and potential scenic roads and sets out the measures required to implement its purposes. Because the element is broad and general in nature, its potential environmental impacts are equally broad. There are no known adverse impacts at such conceptual level and, therefore, no presently identified reason to instigate mitigation measures. At the time of execution of specific projects, it is expected that a range of mitigation measures will be required.

Since the State has mandated adoption of a Scenic Highways



Element there is no alternative of not adopting such element. However, inasmuch as Redwood City already has an adopted Scenic Highways Element, one alternative could be "no action" at this time to revise it. Another alternative could be adoption of the element with no significant implementation proposals. The latter alternative could result in possible long-range adverse impacts on the environment, whereas adoption of many implementation measures could result in both short- and long-range positive impacts on the environment.

There are no identifiable features of the proposed element whose adoption would induce population growth.

#### G. IMPLEMENTATION

The matrix which follows indicates in which five-year period over a span of 25 years it is recommended that the proposals advanced be implemented. Most of the measures proposed in this element do not imply major expenditures by the City to implement them. Most require implementation of legislation and conclusion of agreements with affected property owners. Most funding requirements implied by this element, except those related to signing, are either included normally in private development bordering the proposed routes, or are part of major street and highway upgrading by local, State, and Federal agencies.



**SCENIC ROADS ELEMENT  
PROPOSALS**

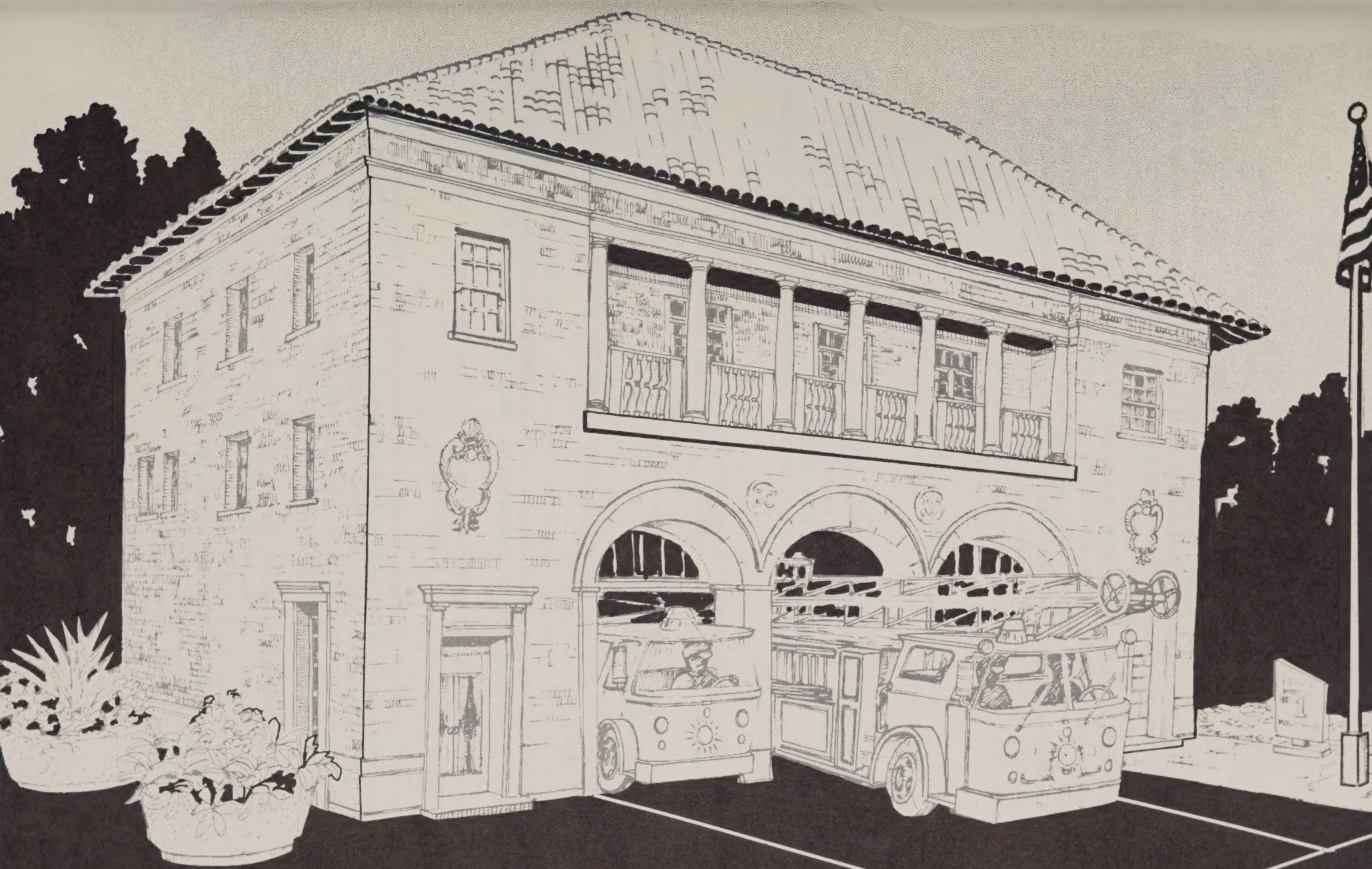
1975- 1980- 1985- 1990- 1995-  
80 85 90 95 2000

|                                                                          |   |   |   |   |   |
|--------------------------------------------------------------------------|---|---|---|---|---|
| 1. Route designation, maintenance, development controls                  | ● | ● |   |   |   |
| 2. Installation of signs designating routes                              |   | ● |   |   |   |
| 3. Improved architectural and landscape quality                          | ● | ● |   |   |   |
| 4. Advance designation to spur quality change                            |   | ● |   |   |   |
| 5. Acquisition of scenic vista points                                    | ● | ● |   |   |   |
| 6. Acquisition of scenic easements along designated routes               | ● | ● |   |   |   |
| 7. Designation of bicycle trails                                         | ● | ● | ● | ● | ● |
| 8. Incompatible sign restriction                                         | ● | ● | ● | ● | ● |
| 9. Consideration of Scenic Route tour                                    |   | ● |   |   |   |
| 10. Adoption of scenic route criteria                                    | ● | ● | ● | ● | ● |
| 11. Maintenance and enhancement of route aesthetics                      | ● | ● | ● | ● | ● |
| 12. Coordination of planning and implementation with other jurisdictions | ● |   |   |   |   |









**SAFETY**

**9**





## A. PURPOSE

The SAFETY ELEMENT of the General Plan prescribes the mechanism for the protection of the community from fires and geological hazards including features necessary for such protection as evacuation routes, peak load water supply requirements, minimum road widths, clearances around structures, and geologic hazard mapping in areas of known geologic hazard. The majority of safety hazards are generally known, and people have been conscious of their existence for some time. A Safety Element should heighten official and public awareness of safety problems, and increase determination to implement programs that will abate or mitigate those problems.

## B. EXISTING CONDITIONS

1. Identification of Typical Fire Hazards: The Redwood City Fire Department, in a recent comprehensive evaluation of fire safety hazards as they relate to the Safety Element of the General Plan, has identified some of the following typical hazards. Some of these are also shown on the Location, Typical Safety Hazards map.
  - a. Substandard residential, commercial, and industrial structures.
  - b. General absence of built-in fire protection in highly flammable structures.
  - c. Chemical plants in close proximity to people-occupied land uses, or upwind thereof.
  - d. Bulk fuel storage facilities not isolated from other possibly incompatible industrial uses.
  - e. Narrow fire access roads to some hillside residential structures.
  - f. Abnormally wide, flame-trapping overhangs on residential structures in wooded hillside areas.
  - g. Present unavailability of requisite specialized fire suppression equipment for hillside areas.
  - h. Flammable structures in areas with normally high wind conditions.
  - i. Unincorporated enclaves built to lower fire safety standards than generally applicable to present-day structures in Redwood City itself.



2. Identification of Geological Hazards: As more specifically set forth in the Seismic Safety Element of the General Plan, the principal geologically related hazards are:
  - a. The quaternary land slide areas in the Emerald Lakes/Redwood City Hillside Area.
  - b. The earth fill dams retaining the Upper and Lower Emerald Lakes.
  - c. Bay mud underlain baylands without adequate and proper site preparation.
3. Identification of General Safety Hazards:
  - a. Potential flooding in lower areas of the City given high runoff, high tides, and power interruption to pumping stations.
  - b. Flooding in the lower reach of Redwood Creek, most of Bair Island, unprotected portions of Redwood Peninsula, the lower reach of Cordilleras Creek, and along other minor stream courses.
  - c. Other flood hazard areas.
  - d. Absence of adequate parallel emergency routes to Bayshore Freeway or El Camino Real.
  - e. Absence of grade separations of the Southern Pacific Railroad as it passes through Redwood City, with potential for delay of emergency vehicles.
  - f. Seismically unproved highway grade separations over major circulation routes with potential for route blockage in event of collapse in a major earthquake.

### C. GOALS

1. Identify existing man-made hazards, and devise a reasonable assignment of responsibility for their correction, reduction, or elimination which will be within limits of economic acceptability to the taxpaying public and to affected persons or property owners.
  - a. Make public policy determination of what constitutes a reasonable assignment of risk reduction responsibility between public safety services and the private property owner.



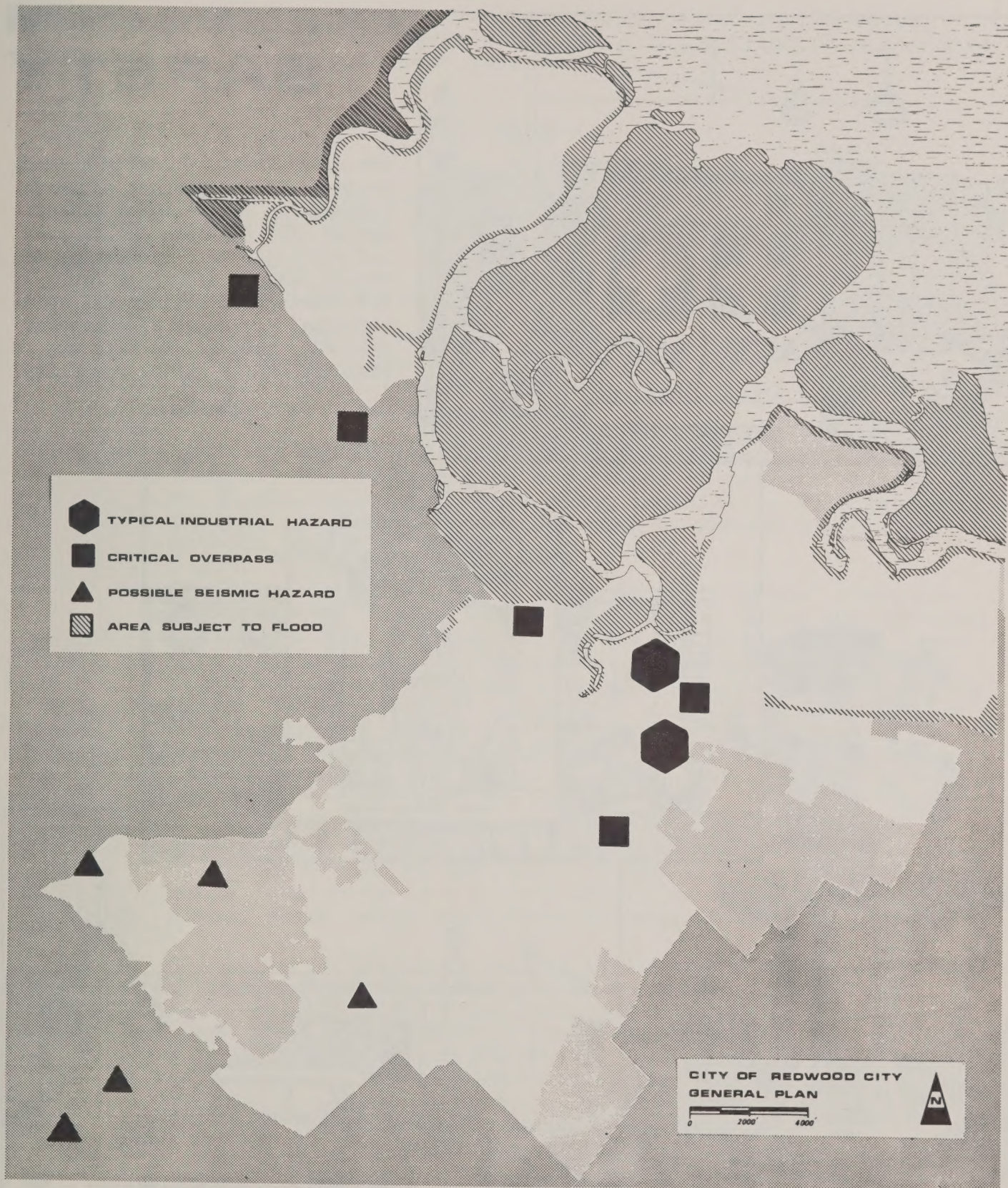
- b. Identify urgently needed implementation measures, and advance proposals for needed legislation.
  - c. Coordinate contingency plans for major disasters or emergencies among the Safety and Public Works services of the City.
2. Revise and administer all codes and safety regulations applicable to new construction, whether public or private, to obviate the existence of safety hazards which present either unacceptable or avoidable types of safety risks.
- a. Apply the principles in the table, "Land Use/Building Type Acceptable Risk Policy and Investigation Standard" in the Seismic Safety Element to categorization of safety risks in the Safety Element.
  - b. Apply high safety standards to all new construction and land uses.
  - c. Coordinate safety inspection programs involving two or more City departments.
3. Bring about a measurable reduction in existing safety hazards in all residential structures by educating the public on the need for safety measures.
4. Achieve a measurable reduction in all unacceptable and avoidable types of safety risks in commercial and industrial occupancies by gradually reducing safety hazards with their attendant potential economic and social costs.
5. Set safety goals consistent with the goals of other elements of the General Plan.

#### D. STANDARDS

Standards applicable to components of the Safety Element are those which are found in various City, County, and State codes. Typical of the local codes which set performance standards are: the Uniform Building Code, as amended, and the Uniform Fire Code. County and State codes related to safety are typically housing codes, health codes, motor vehicle codes, and traffic codes.

Each of the above-listed types of codes includes standards which, applied locally, promote and enhance the safety of Redwood City residents. From time to time, as conditions warrant, standards in local codes are promulgated that apply more stringent requirements than those in the basic codes in order to deal with locally identified safety issues. The City of Redwood City has continually





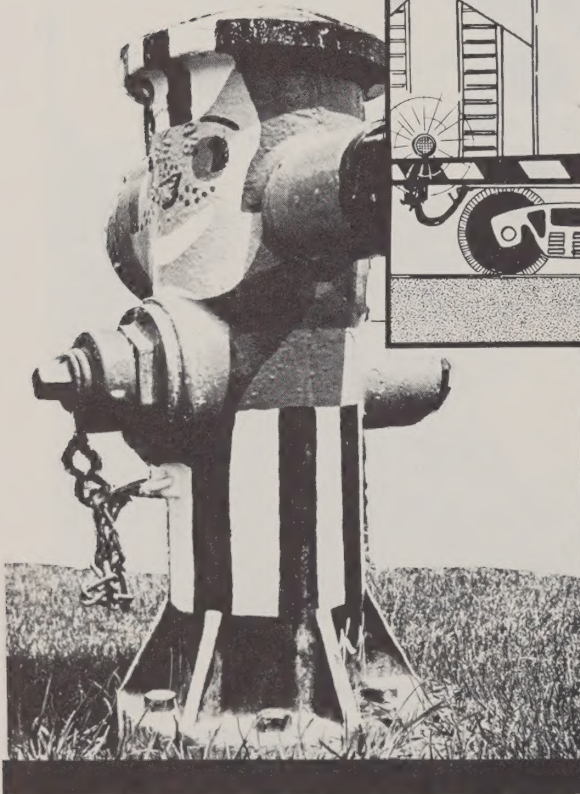
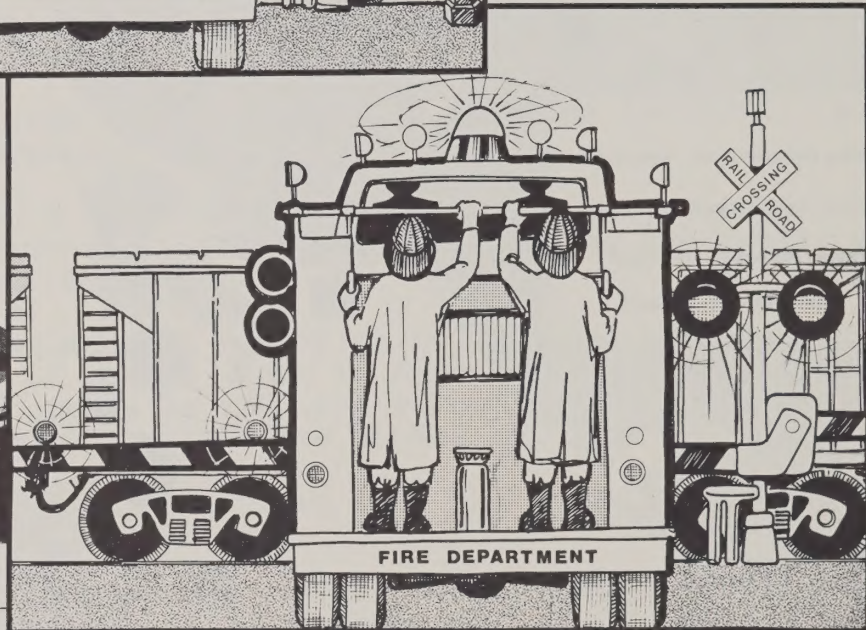
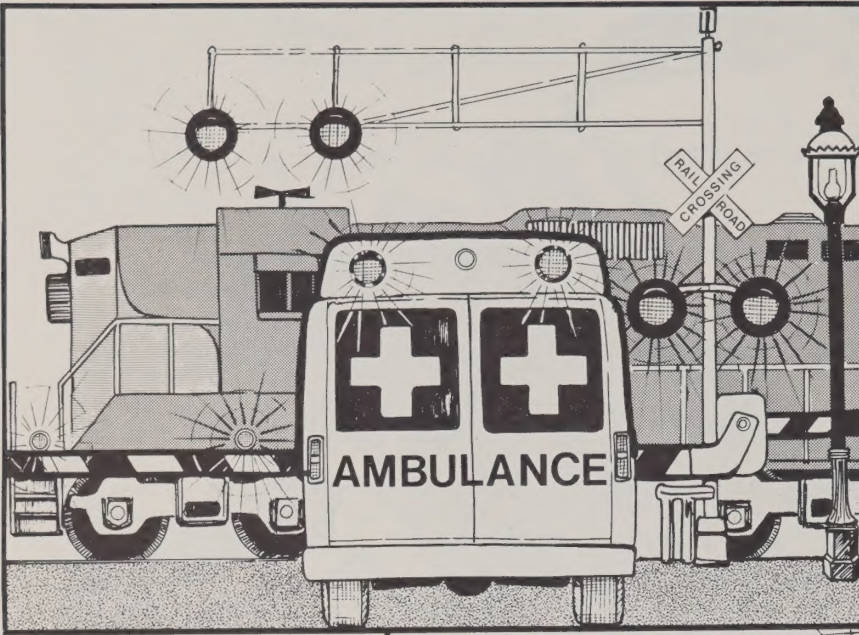
# LOCATION TYPICAL SAFETY HAZARDS

**SAFETY  
ELEMENT**

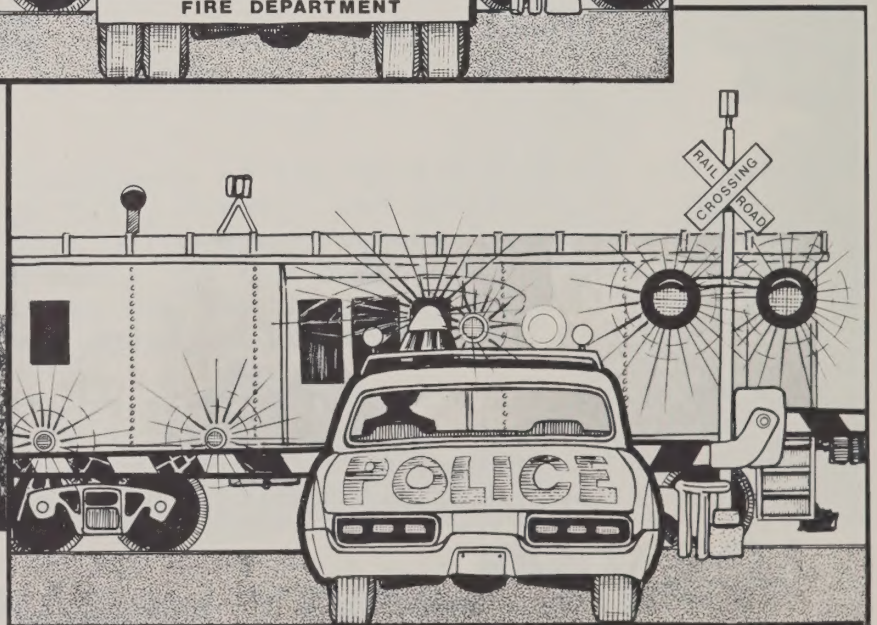


# SAFETY

One of a number of safety hazards pertains to the absence of grade separations of the major street system from the mainline freight and passenger rail service as it passes through Redwood City . . . the drawings illustrate the real potential for delay of emergency vehicles, endangering life and property in the entire community



**FIRE PREVENTION  
IS YOUR JOB**





sought application of more pertinent safety standards wherever there was a demonstrated hazard for which the setting of a standard would serve to mitigate such hazard.

## E. PROPOSALS

It is recommended that the proposals set out below be implemented to effectuate the stated purposes, goals, and policies in this element.

### 1. Reaffirmation of Policy:

- a. The City should reaffirm its policy of recognizing existence of many types of safety hazards within its boundary despite its diligent prosecution of existing standards, codes, and regulations.
- b. The City should institute study programs to definitively identify the exact nature and extent of certain hazards and to incorporate into the on-going legislative and management process specific measures designed to reduce identified hazards, or to eliminate them.
- c. The City should designate as "acceptable risks" risks occurring under the following conditions: where the affected individual has full control of his own safety; where individuals can exercise reasonable and prudent caution; and where such risks accepted by individuals will not adversely affect other persons. (Example: a wooden frame dwelling with a flammable shake roof. Both are fire risks but generally do not present clear threat to other persons or property and can be limited by existing fire suppression forces.)
- d. The City should designate as "unacceptable risks" all safety risks which present a demonstrable threat to persons, or property used by persons. (Example: storage of flammable substances in a highly sensitive use, such as a hospital, which would needlessly endanger lives and property.)
- e. All safety risks which can be avoided by normal, prudent public and private actions will be deemed "avoidable risks." (Example: reasonable application of sight distance at street intersections which can avoid many vehicular collisions due to drivers of vehicles being able to see each other in time to avoid collisions.)

### 2. General Plan Element Revisions:

- a. All general plan elements should be reviewed in the course of their periodic review for consistency with the goals and principles of the Safety Element.



- b. The Circulation and the Seismic Safety Elements should be made compatible wherever necessary at the conclusion of each periodic review.
- c. The Circulation Element implementation section should propose an on-going program to develop greater traffic safety through education and construction.

3. Capital Improvements Program:

- a. The Capital Improvements Program of the City should specifically earmark safety programs for those departments (such as Public Works, Police, and Fire) most appropriately concerned.
- b. Capital Improvements Program proposals relating to safety measures should continue to be reviewed and commented upon from a safety standpoint before going to the City Manager.

4. Ordinances and Regulations:

- a. When the Redwood City Zoning Ordinance is comprehensively reviewed, it should be revised for reinforcement of the goals of the Safety Element, and should specifically regulate uses in the same zoning district that are incompatible from a safety standpoint.
- b. Setback, vegetation, and fencing requirements of the Zoning Ordinance should be reviewed for fire, traffic, and personal safety aspects.
- c. Subdivision and site development regulations should be reviewed for implementation and reinforcement of the goals of the Safety Element, especially as they relate to geologic and seismic safety factors.
- d. Site development regulations should be revised to require geologic and soils investigation.
- e. The latest Uniform Building Code and the latest Uniform Fire Code should continue to be expeditiously adopted by the City after review for local modifications.

5. Inspection Programs:

- a. The City should fund a continuing program of joint safety inspections on an area by area basis with participation by representatives of the Building and Fire Departments.
- b. The safety inspection of premises should include a representative of the Planning Department to coordinate land use regulation with enforcement of safety regulations.



- c. The City Attorney's Office should be required to recommend procedures for prompt, effective legal enforcement of code violations where normal notification procedures prove ineffective in achieving compliance.

6. Contingency Plans for Major Disasters or Emergencies:

- a. Redwood City safety services and other appropriate departments should review and update the Emergency Operation Plan, and the Fire, Police, and Public Works Department annexes to that plan.
- b. Special emphasis should be placed on achieving coordination with the Area Disaster Plan, the County Emergency Operation Plan, and the City Emergency Operation Plan and its constituent annexes.
- c. Standing agreements should be reached with other public and private agencies to furnish specified aid upon demand in the event of a major emergency.
- d. The Redwood City Safety Services, the City Manager's Office, and the Public Works Department along with other City departments acting in a support role, should conduct simulated emergency "games" to test plan effectiveness and keep personnel familiar with the plan.
- e. The City should utilize management information system potentials for storage and retrieval of support data for emergency plans.
- f. To achieve maximum benefit from contingency planning activities, the public should be kept currently informed, and local school districts' cooperation should be enlisted.

7. Other:

- a. Consideration should be given to enactment of legislation requiring mandatory referral for review and comment, by Fire and Police Departments, on the safety aspects of Planned Unit Development applications, all multi-family housing containing five or more units, and all commercial and industrial projects in excess of 20,000 square feet. Other types of construction and occupancies should be reviewed as deemed necessary.
- b. All appropriate City departments should be encouraged to provide positive input into each updated Safety Element.
- c. A community educational program should be undertaken to demonstrate the desirability of installing certain fire or smoke early-warning devices in all classes of structure to



promote increased personal and structural safety without increasing the taxpayers' burden for fire safety services.

#### F. ENVIRONMENTAL ASSESSMENT

The proposed revised Safety Element of the General Plan of Redwood City in and of itself will not result in any direct impact on the environment in the short-term. The long-term mitigation or abatement of safety hazards proposed to be undertaken in this element would enhance the environment for man. There are no known environmental effects created by this element, and as a consequence there is no need for impact mitigation. There is no practical alternative to the proposed Safety Element inasmuch as it is required by law as a General Plan Element. The general and "identification of hazards" nature of the element will result in neither irreversible environmental changes nor growth inducement impact.

#### G. IMPLEMENTATION

Priorities for Safety Hazard Abatement: Some safety hazards represent an everpresent danger to life, limb, and property, while others statistically occur infrequently or perhaps never in the lifetimes of some. Fire is a hazard that is everpresent, while a large earthquake is an example of a hazard that only infrequently occurs in the Redwood City area. This is not to imply that the resultant destruction of a quake might not be more catastrophic than a fire, but that the odds of it occurring frequently, as compared to a fire, are quite low.

For this reason, this element prescribes that a reasonable order of priority for abatement of hazards would be: fire hazards, transportation hazards, structural hazards (normal code violations and seismic safety hazards), and geologic hazards.

The matrix below indicates in which five-year period, over a span of 25 years, it is recommended that the proposals advanced in this Element be implemented. Most proposals do not require significant budgeting of funds to accomplish them. Others, on the other hand, carry with them implications of more significant budgeting by the City and others to accomplish the proposals' objectives.



# SAFETY ELEMENT PROPOSALS

1975- 1980- 1985- 1990- 1995-  
80 85 90 95 2000

|                                         |  |
|-----------------------------------------|--|
| 1. <u>Policy:</u>                       |  |
| a. Reaffirmation of policy              |  |
| b. Identify and reduce hazards          |  |
| c. "Acceptable" risks                   |  |
| d. "Unacceptable" risks                 |  |
| e. "Avoidable" risks                    |  |
| 2. <u>General Plan Revisions:</u>       |  |
| a. Review for consistency               |  |
| b. Coordination of Elements             |  |
| c. Emphasis of traffic safety           |  |
| 3. <u>Capital Improvements Program:</u> |  |
| a. Earmarking safety programs           |  |
| b. Safety aspects of program            |  |
| 4. <u>Ordinances and Regulations:</u>   |  |
| a. Review of Zoning Ordinance           |  |
| b. Review of fencing, etc.              |  |
| c. Subdivision ordinance                |  |
| d. Geologic investigations              |  |
| e. Adoption of U.B.C. and U.F.C.        |  |
| 5. <u>Inspection Programs:</u>          |  |
| a. Joint safety inspections             |  |
| b. Planning Department                  |  |
| c. Code violation enforcement           |  |
| 6. <u>Contingency Plans:</u>            |  |
| a. Review and update plans              |  |
| b. Coordination of all plans            |  |
| c. Mutual aid agreements                |  |
| d. Conduct simulation "games"           |  |
| e. Information systems                  |  |
| f. Information to the public            |  |
| 7. <u>Other:</u>                        |  |
| a. Police and Fire Department           |  |
| b. Input from all departments           |  |
| c. Educational program                  |  |

|   |   |   |   |   |
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|   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 |   | ● | ● | ● | ● | ● | ● | ● | ● |
| 2 | ● |   | ● | ● | ● | ● | ● | ● | ● |
| 3 | ● | ● |   | ● | ● | ● | ● | ○ | ● |
| 4 | ● | ● | ● |   | ● | ● | ○ | ● | ● |
| 5 | ● | ● | ● | ● |   | ● | ● | ● | ● |
| 6 | ● | ● | ● | ● | ● |   | ○ | ○ | ● |
| 7 | ● | ● | ● | ○ | ● | ○ |   | ● | ○ |
| 8 | ● | ● | ○ | ● | ● | ○ | ● |   | ● |
| 9 | ● | ● | ● | ● | ● | ● | ○ | ● |   |

# RELATIONSHIP BETWEEN GENERAL PLAN ELEMENTS



The nine General Plan elements are related to each other to a lesser or greater degree. The Land Use element, for example, is closely related to the Housing and Open Space elements, and the Noise Element takes up the issue of noise caused by traffic which in turn is a major subject of the Circulation Element. Goals and proposals in one of a number of related elements have had to take into account their consequences on the goals and proposals of the related elements.

Furthermore, implementing one element, or interpreting a particular proposal out of the context of its relationships with other elements' objectives, could have the result of working against, or frustrating the objectives of those related elements. Therefore, the entire General Plan must be considered as a unity of the comprehensive array of considerations, and not just a catalogue of independent proposals. The following matrix depicts subjective degrees of relatedness between the nine elements of the General Plan, where "3" is close relationship, "1" is slight relationship, and "2" is intermediate between these:

|                | Land Use | Circulation | Housing | Open Space | Conservation | Seismic Safety | Noise | Scenic Roads | Safety |
|----------------|----------|-------------|---------|------------|--------------|----------------|-------|--------------|--------|
| Land Use       |          | 3           | 3       | 3          | 3            | 3              | 3     | 3            | 3      |
| Circulation    | 3        |             | 2       | 2          | 2            | 2              | 2     | 3            | 3      |
| Housing        | 3        | 2           |         | 2          | 2            | 2              | 2     | 1            | 2      |
| Open Space     | 3        | 2           | 2       |            | 3            | 3              | 1     | 3            | 2      |
| Conservation   | 3        | 2           | 2       | 3          |              | 3              | 2     | 3            | 2      |
| Seismic Safety | 3        | 2           | 2       | 3          | 3            |                | 1     | 1            | 3      |
| Noise          | 3        | 2           | 2       | 1          | 2            | 1              |       | 2            | 1      |
| Scenic Roads   | 3        | 3           | 1       | 3          | 3            | 1              | 2     |              | 2      |
| Safety         | 3        | 3           | 2       | 2          | 2            | 3              | 1     | 2            |        |



The feedback process between and among the various elements operates at the same degree of relatedness as that depicted in the above matrix. The feedback process operates in respect to plan formulation, implementation, and revision.

Specific examples of areas of relationship between General Plan elements include, but are not limited to, the following:

- A. Land Use with Circulation: The Land Use and Circulation elements are intimately related, because without land development and usage, there is no need for a circulation system, and, conversely, without a circulation system, land development and usage cannot proceed. Modifications in the circulation system will influence or deter land development by its increased or decreased ability to serve the potential land usage in a given area. It is axiomatic that the circulation system should serve the land uses, rather than vice versa. At the same time, the Land Use element should accommodate requirements of the circulation system, e.g., to assure that land area is available and reserved for a transit station and parking, or for an airport, or for other circulation features that occupy land area outside of public street right-of-ways.
- B. Circulation with Scenic Roads: Scenic roads are an integral part of the circulation system. They are distinguished from other roads primarily in regard to their existing or potential scenic quality. Idealistically, every travelway in the circulation system should be a scenic road, a route of travel that would be enjoyable as well as utilitarian, uplifting as well as transporting. Realistically, in most cases, the scenic qualities striven toward should not be such as to impair the utility of a road network, but neither should the scenic potential be ignored in the development or improvement of any traffic facility.
- C. Scenic Roads with Open Space: Scenic roads form the links to the open space features of the urban area. One form of a scenic road is a parkway which consists of a trafficway through a linear park; another form is as an approach to a scenic open space resource, passing through an attractive and well-appointed developed area; still another may be an old street or highway that has been neglected for decades and is given special attention, at last, to be redesigned, rebuilt, and landscaped to become the pride of the City. Scenic roads in all these instances have the aspect of open space and similarly enrich the quality of life in the community.
- D. Open Space with Conservation: An open space area preserved for its aesthetic value may provide prime habitat for indigenous wildlife species and so becomes an area to be conserved as a wildlife refuge. Conversely, the preservation of areas such as hillsides and baylands in the interests of ecology, air and



water quality, and recreation indirectly results in an open space resource.

- E. Conservation with Seismic Safety: The Conservation Element includes measures which would serve to mitigate seismic and other geologic hazards, such as setting aside lands to be preserved in their natural, undisturbed states to minimize disruption and destruction in the event of a seismic disturbance. This relationship also brings the Open Space Element into play.
- F. Seismic Safety with Safety: Seismic safety is a principal component in the broad spectrum of community safety considerations. Virtually every safety risk in the community, regardless of its basis, is also a seismic risk because of the pervading nature of an earthquake and its effects on old buildings, tenuous soils, and critical traffic facilities.
- G. Safety with Noise: Noise is an unwanted sound, and in its most common exposure is a nuisance and an annoyance, but in its extreme form can be injurious and damaging to both mind and body. Levels of noise that can damage hearing and jeopardize emotional health are becoming commonplace in urban environments and need to be recognized and dealt with in the interests of public safety.
- H. Noise with Housing: Noises can be annoying and damaging, but are perhaps most oppressive when imposed from the outside upon one's own home environment. Traffic noise, airport noise, and railroad noise, as three examples, can reduce a residential area to an undesirable living environment and, finally, contribute to its evolution toward becoming a slum. This relationship brings the Land Use, Circulation, and Open Space Elements into play.
- I. Housing with Land Use: The Housing Element, in a sense, is the residential component of the Land Use Element, as opposed to the commercial, industrial, open space, and public components. It goes further, however, to prescribe means toward the achievement of a safe, sanitary, and decent home in a suitable environment for all Redwood City residents. In that respect, it is a magnification and elaboration of the residential components of the Land Use Element.



## NOTES

... FOR A BETTER COMMUNITY



## NOTES



## NOTES

... FOR A HEALTHIER COMMUNITY



## NOTES



## NOTES

... FOR A SAFER COMMUNITY







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